

EV-S550E

RMT-456

SERVICE MANUAL

AEP Model



Video 8

U MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL III" (9-972-732-11).

SPECIFICATIONS

System

Video recording system

Rotary two-head helical scanning
FM system

Audio recording system

Standard: Rotary head, FM system
(2 channels)

PCM: PCM system (2 channels)

Colour system

DDR SECAM to PAL colour,
convertible

Usable cassettes

8 mm video format cassettes

Tape speed

SP: approx. 20.051 mm/sec.
LP: approx. 10.058 mm/sec.

Recording/playback time

SP: 1 hr 30 min.
LP: 3 hrs.
(with Sony P5-90 cassette)

Fast-forward/rewind time

Approx. 4 min. (with Sony P5-90
cassette)

Tuner section

Channel coverage

VHF channels E2 - E4, E5 - E12
UHF channels E21 - E69
Cable TV channels S01 - S03,
S1 - S20 and S21 - S41

Programming system

60 program-memories

PF output signal

UHF channels E30 to E39
(variable), 75 ohms, unbalanced
75 ohms, asymmetrical aerial
socket

Aerial input

PCM

Sampling frequency

31.25 kHz

Audio frequency

20 ~ 15 kHz

Dynamic range

More than 88 dB

Wow and flutter

Less than 0.005% RMS

Inputs and outputs

Video inputs

Video in phono jack
1 Vp-p, 75 ohms, unbalanced, sync
negative

Video outputs

Euro AV 21-pin (pin 19)
1 Vp-p, 75 ohms, unbalanced, sync
negative

Video out phono jack
1 Vp-p, 75 ohms, unbalanced, sync
negative

Audio inputs

Phono jack X2
-7.5 dBs (0 dBs=0.775 V rms)

Audio outputs


Euro AV 21-pin (pins 1 and 3)
Output impedance less than 1
kilohm -6 dBs with 10 kilohms
load, unbalanced
Audio out phono jack X2
-7.5 dBs (372 mV) (at load
impedance 47 kilohms) less than
10 kilohms

- Continued on next page -



STEREO VIDEO CASSETTE DECK

SONY®

Microphone input	Minijack — 60 dBs, for low impedance microphone
Headphone jack	Stereo minijack — 26 dBs, 8 ohms
DC out for Camcorder CONTROL L 	7.5 V DC, 1.6 A
	Stereo mini-mini jack

Timer

Clock	Crystal lock
Timer indication	24-hour cycle
Timer setting	Only for recording 6 events/ 1 month max.

General

Power requirements	220 V AC, 50 Hz
Power consumption	24 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Dimensions	Approx. 430 × 100 × 302 mm (w/h/d)
	Approx. 17 × 4 × 12 inch
Weight	Approx. 5.3 kg (11 lb ½ oz)

Accessories supplied

See page 12.

Remote Commander RMT-456

Remote control system

	Infrared control
Command mode	Selectable VTR 1, 2 or 3
Power requirements	3 V DC 2 size AA batteries (IEC designation R6)
Dimensions	Approx. 77.5 × 20 × 219 mm (w/h/d) Approx. 3 × 3/4 × 8 1/2 inches incl. projecting parts and controls
Weight	Approx. 170 g (2.2 oz) without batteries

Design and specifications subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!



COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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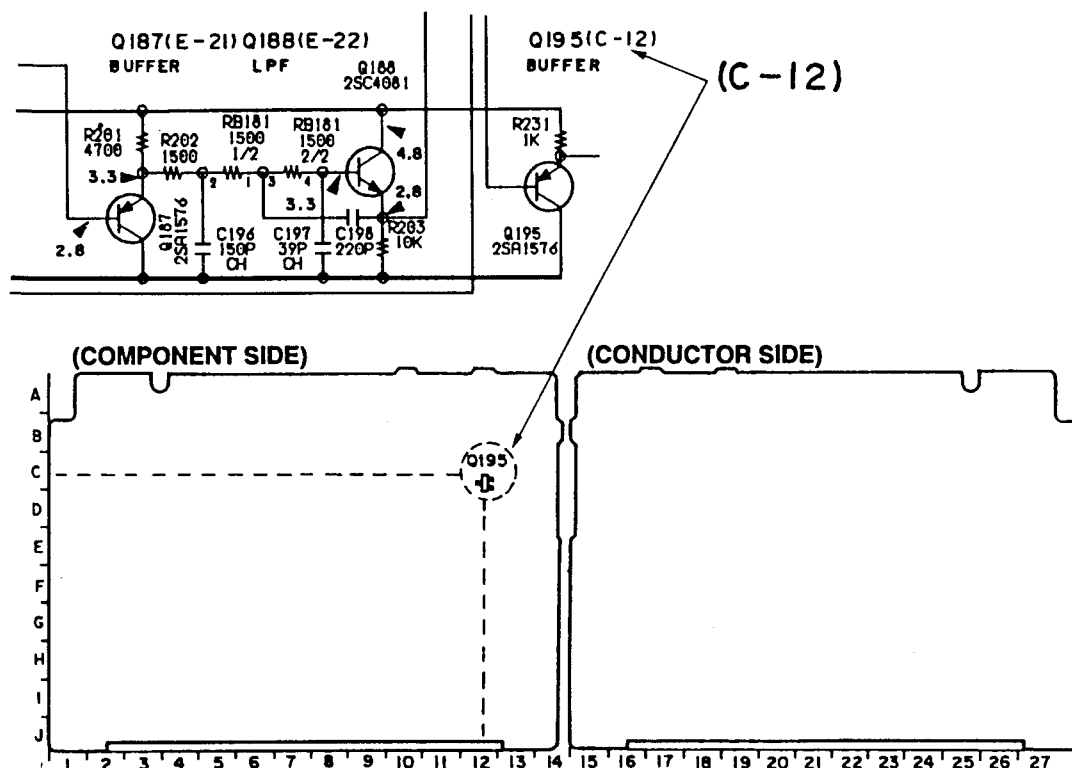
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SECTION 1

SERVICE NOTE

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.



1-1. SERVICE MODE

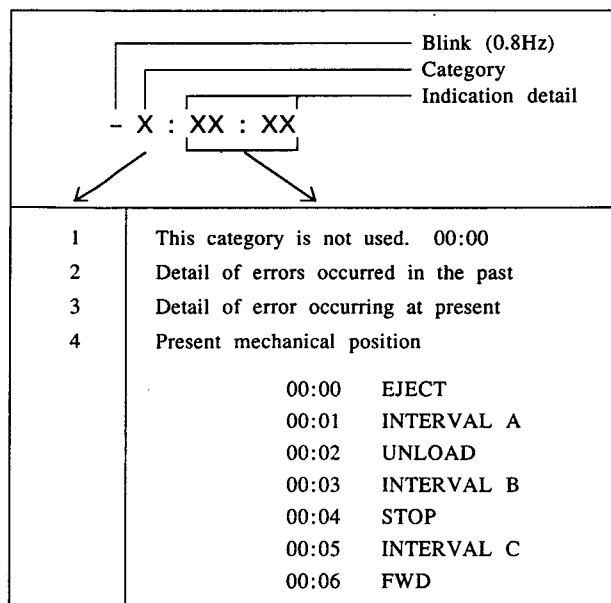
This equipment is provided with self-diagnostic function for the system control circuits. By selecting service mode, the state of error is indicated digitally on the FL indication tube. Use this function for service, failure analysis, etc.

1-1-1. How to select service mode

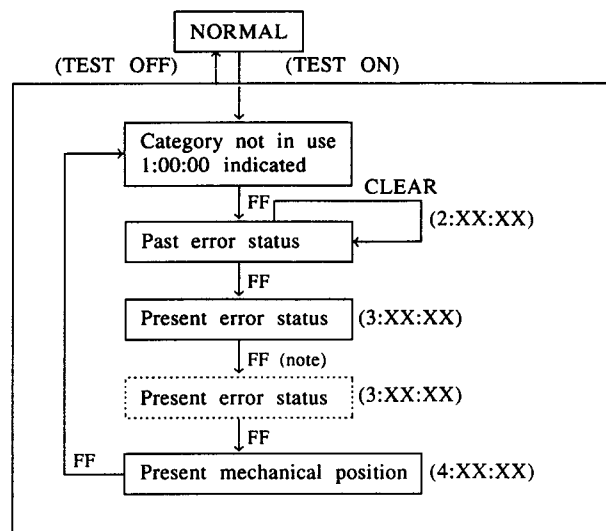
- 1) Remove the bottom plate of the unit.
- 2) Connect the TEST pin TP001 equipped on the pattern surface side of the ST-41 board, to GND. Thus, service mode is effected.
- 3) Every time the FF key (on the main unit or remote controller) is pressed, the category changes.
- 4) After completion of servicing, disconnect TP001 of board ST-41 out of the GND.

1-1-2. Indication methods

- Indication zones of the hour, minute and second counter in the FL indication tube are diverted.



1-1-3. Status transition diagram



Note: If there are several statuses of present errors, all are indicated.

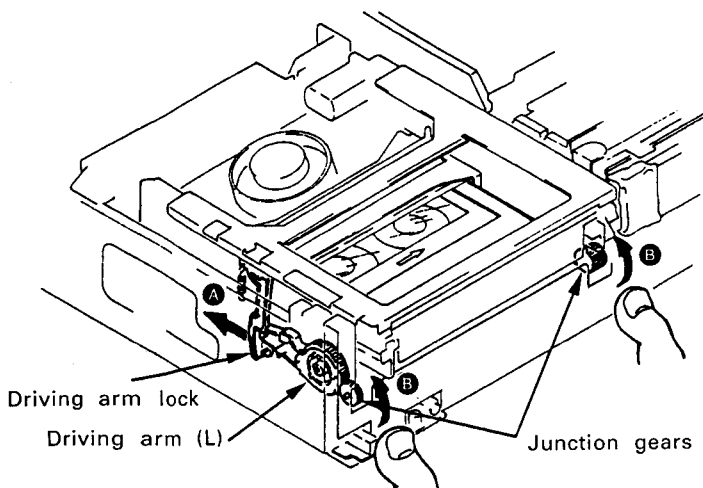
Service mode error indication

Error state		PRESENT EMG.indication (-3:XX:XX)	LAST EMG.indication (-2:XX:XX)
No error		00:00	00:00
Loading motor		00:01	00:01
Reel error in unloading		00:02	00:02
Other REEL errors		00:03	00:03
Capstan error		00:04	00:04
FG error upon starting drum	(0)	00:05	00:05
	(1)	01:05	00:14
	(2)	02:05	00:15
No PG upon starting drum	(0)	00:06	00:06
	(1)	01:06	00:14
	(2)	02:06	00:15
FG error during normal drum operation	(0)	00:07	00:07
	(1)	01:07	00:14
	(2)	02:07	00:15
No PG during normal drum operation	(0)	00:08	00:08
	(1)	01:08	00:14
	(2)	02:08	00:15
Phase during normal drum operation	(0)	00:09	00:09

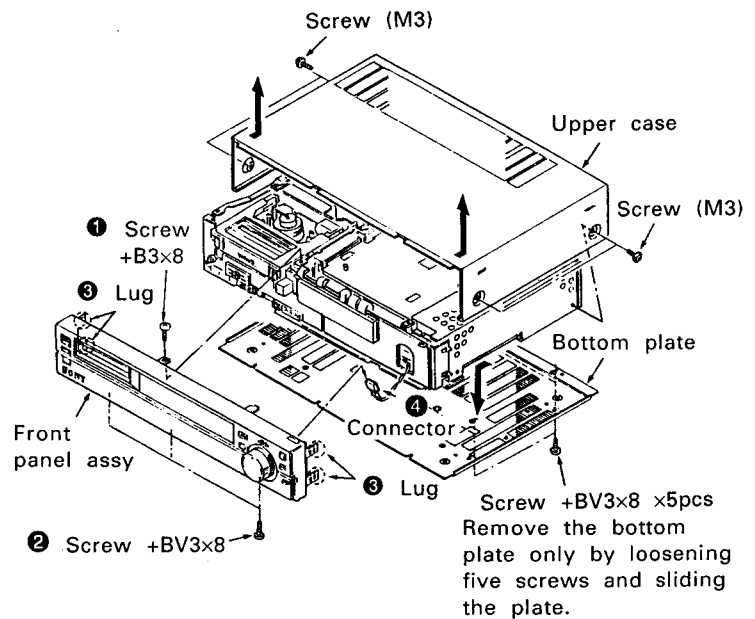
- (1) Loading
 (2) Upon unloading
 (3) Others

1-2. HOW TO REMOVE CASSETTE WHEN FAILED WITH CASSETTE STILL IN

- ① If the tape cannot be taken out while being wrapped onto the drum, remove the CM-13 board from the lower side of the mechanical unit, rotate the capstan motor wheel in any direction to turn the reel in the S or T side and house the tape. After completion of housing, operate ②.
- ② When the tape is housed in the cassette half and cannot be taken out:
 - 1) Remove the front panel and remove the assy of the L frame and driving arm (L) equipped in the left side of the cassette control unit, in the direction of the arrow **A**.
 - 2) Rotate the junction gears in the direction of the arrow **B** with your both thumbs.

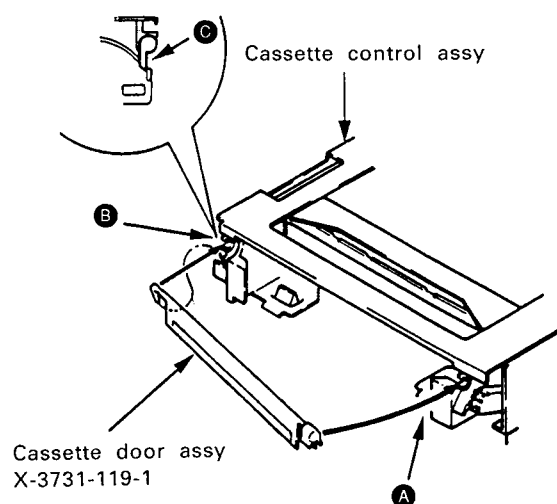


1-3. REPLACING of OUTER FITTINGS



1-4. REPLACING of CASSETTE DOOR ASSY

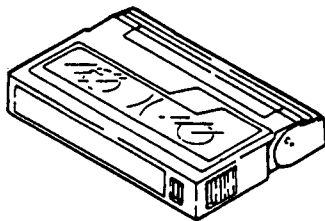
- 1) Remove the front panel.
- 2) First remove Part **A** towards you and then remove Part **B**.
- 3) For mounting, first engage the lug of Part **C** and then Part **B**. Mount Part **A** so that the door can hang substantially vertically.



1-5. HOW TO CLEAN VIDEO HEAD AND RUNNING SYSTEM

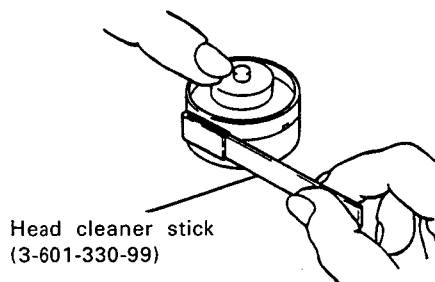
Method 1 Cleaning with cleaning tape

- Use the cleaning cassette V8-25CLH. (Before using it, be careful to read the manual attached to the cleaning cassette.)



Method 2 Cleaning with cleaning liquid

- ① Remove the upper case of the video deck.
- ② Coat the cleaning liquid onto the head cleaner stick (Ref No. 3-601-330-99).
- ③ Referring to the right, clean the video head by lightly attaching the head cleaner stick while slowly rotating the rubber part of the upper rotation drum.



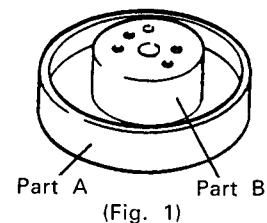
(Cleaning of running system)

- ① Coat the cleaning liquid onto the head cleaner stick.
- ② Clean each guide and pinch roller coming in direct contact with the tape, using the head cleaner.

1-6. REPLACING of UPPER ROTATION DRUM

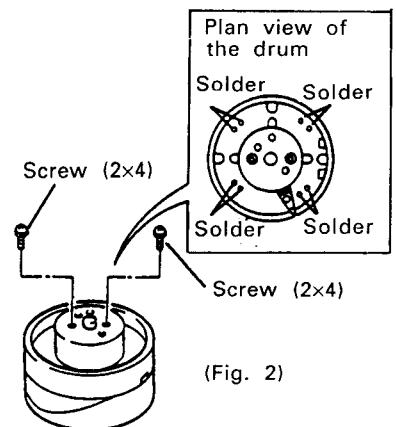
Method 3 Precautions

- Be extremely careful to handling the video head and the terminal.
- Referring to Fig. 1, don't touch the side surface (Part A) directly with your finger tips but hold the upper part (Part B) to take the upper rotation drum.

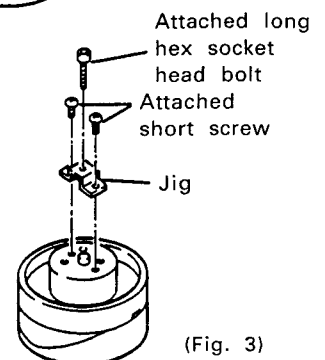


Removing of upper rotation drum

- ① Referring to Fig. 2, remove 2 short screws (2 × 4).
- ② Referring to Fig. 2, completely remove the soldering at 8 places on the board of the upper rotation drum.

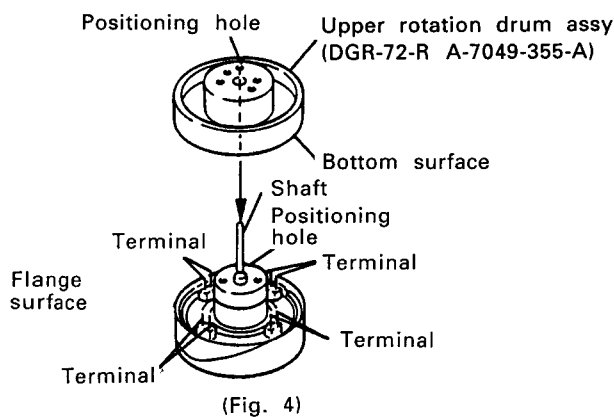


- ③ Referring to Fig. 3, fix the repairing jig (packed in the upper rotation drum) using 2 short screws attached to the jig and screw in the attached long screw rod. Thereby, the upper rotation drum is removed.

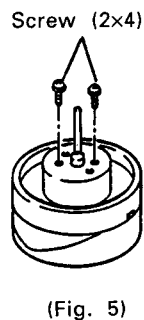


Mounting of new upper rotation drum

- ① Referring to Fig. 4, clean the flange surface and the bottom surface of the new upper rotation drum.
- ② Referring to Fig. 4, insert the shaft attached to the jig into the positioning hole of the lower drum, insert the shaft into the positioning hole of the new upper rotation drum and softly set the upper rotation drum.



- ③ Lightly push the upper rotation drum manually with the shaft still inserted in the positioning hole. However, if it cannot be inserted completely, alternately tighten 2 long screws (2 × 5) referring to Fig. 5 to fix the upper rotation drum.
- ④ Remove the shaft already inserted before. If removing of the shaft is sluggish at that time, repeat operations from ②.



- ⑤ Referring to Fig. 2, solder 8 places on the board of the upper rotation drum and 8 terminals.
- ⑥ After completion of replacing the upper rotation drum, clean the video head and the running system using the head cleaner stick referring to "Method 2 Cleaning of Video Head and Running System."

SECTION 2 GENERAL

This section is extracted from
instruction manual.

EV-S550E

Features

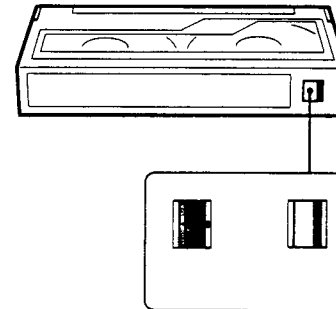
- **PCM audio recording system**
This feature allows you to take advantage of the latest technology in high-grade audio systems.
- **Hi-Fi stereo recording and playback**
You can enjoy dynamic Hi-Fi stereo sound by connecting your audio system to this VTR.
- **EDIT SHUTTLE for easy editing**
You can search for a desired editing point quickly by turning the EDIT SHUTTLE control clockwise or counterclockwise.
- **Useful tape counter**
The tape counter clearly indicates the number of hours, minutes and seconds that have elapsed during recording or playback operations.
- **Easy editing with a Sony 8mm Camcorder**
The LINE IN AUDIO/VIDEO and DC OUT jacks on the front panel allow for easy connection of the Sony 8mm Camcorder. The DC OUT (7.5V, 1.6A) jack supplies power for the camcorder so that it can easily be used to perform editing.
- **CONTROL L (LANC) jack**
When using this jack to connect another video peripheral such as a VTR, tape transportation for the other peripheral can easily be controlled on this unit. Furthermore, you can control both devices simultaneously for a bilateral synchronized editing.
- **REC LEVEL control for audio dubbing**
This control knob is used to adjust the audio level for each scene when audio dubbing.
- **Remote Commander with LCD**
You can preset this VTR to show or record programs (timer setting) automatically using the Remote Commander with LCD. Almost all operations can be done by using this device.
- **Six event timer**
Each month up to six preselected programs can be set for recording with this timer.

This unit uses 8mm video format cassettes.

It records in the SP mode (approximately 20.051 mm/second) and the LP mode (approximately 10.058 mm/second) and can play back in the SP mode and the LP mode.

This unit is equipped with PCM (digital audio) recording/playback functions.

Cassette Care



To prevent Accidental Erasure

Slide out the tab on the cassette so that the red colour appears.

To re-record on the cassette, slide the tab back.

Tape Speed

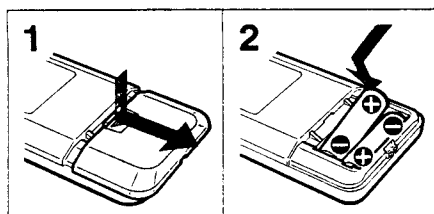
The LP mode is twice as long as the SP mode. For better picture, recording in the SP mode is recommended. During playback, the mode in which the tape was recorded is selected automatically.

Cassette used	Tape speed	
	SP	LP
P5-15MP	15 min.	30 min.
P5-30MP	30 min.	1 hour
P5-60MP	60 min.	2 hours
P5-90MP	90 min.	3 hours

Notes

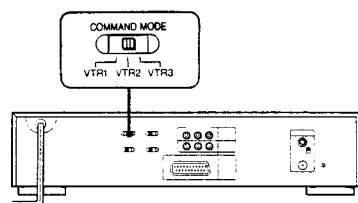
- Always insert the cassette in the correct direction.
- Never insert anything in the small holes on the rear of the cassette.
- Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.
- To record from the beginning of the tape, run the video camera recorder for about 15 seconds at the beginning of a cassette before recording. It will avoid missing the starting point during playback on a video cassette recorder.
- When the VTR is not in use, remove the cassette.

Preparing the Remote Commander



Battery Insertion

- 1 Slide and remove the cover.
- 2 Insert two R6 (size AA) batteries with the correct polarity.
- 3 Close the cover.
The clock on the Remote Commander will read "--:--".
Set the date and clock referring to "Setting the Clock".



Setting the Remote Commander to control your VTR

This Remote Commander can be used to control three different types of Sony VTRs. The Remote Commander identifies each VTR by its command mode setting.

Setting the command mode on this VTR

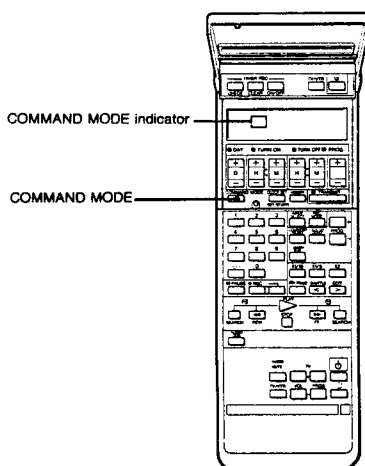
- 1 Set the COMMAND MODE selector on the rear panel of the VTR to the desired position, VTR1, VTR2 or VTR3. Set normally to VTR2.
- 2 Press the COMMAND MODE button on the Remote Commander to display the same position, which has been set on the VTR, in the LCD. Then the VTR can be operated with the Remote Commander.

Remotely controlling other Sony VTRs

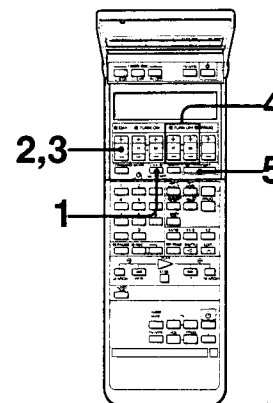
- Controlling another VTR equipped with the command mode selector
Set different command modes for this VTR (VTR2, for instance) and the other VTR (VTR1). Select the identical command mode set on each VTR on the Remote Commander. For instance, select VTR1 on the Remote Commander to control the other VTR and VTR2 to control this VTR.
- Controlling another VTR without a command mode selector
Change the setting on the Remote Commander according to each type of VTR as follows:
VTR1: Sony Betamax VTRs
VTR2: Sony 8mm VTRs (this VTR)
VTR3: Sony Hi8 VTRs

Note on batteries

- On battery life
Under normal operation, batteries will last for about 6 months. When the batteries are exhausted, the remote function will not be operated when the buttons on the Remote Commander are pressed. Replace all the batteries with new ones.
- Insert batteries correctly according to their polarities.
- Do not use a new battery and an old one together. Batteries of different types also should not be used simultaneously.
- If the Remote Commander is not to be used for a long time, remove the batteries to avoid possible damage from battery leakage.



Setting the Clock



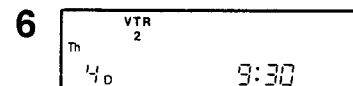
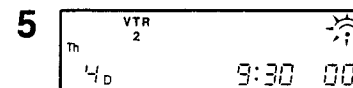
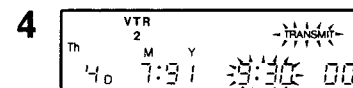
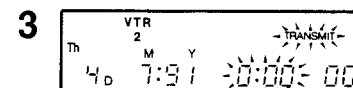
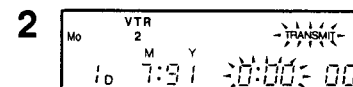
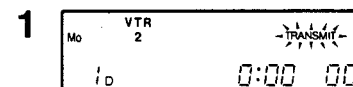
Set the date and time (clock) on the Remote Commander. Then transmit it to the VTR.

The time and date between the years 1990 and 2005 can be set.

Operation

Example: To set to 9:30, Thursday, July 4, 1991.

- 1 Open the cover and press the CLOCK SET button.
- 2 Press the D+ (day) button until "7 M 91 Y" is displayed.
The day will be advanced slowly up to 30 (31) days ahead and then the month will be advanced. When the number of the desired month has appeared, release your finger from the button.
- 3 Press the + side or - side of the D (day) button until 4 D is displayed.
The day of the week appears automatically.
- 4 Press the H (hour) and M (minute) buttons under ③ TURN OFF to set to 9:30.
- 5 Point the Remote Commander at the VTR and press TRANSMIT.
A beep sound confirms that the date and clock setting is registered in the VTR as well.
The clock on the VTR will start counting and displaying the seconds in the LCD.
- 6 Check the display window on the unit and close the cover.



When "0:00" is blinking on the unit

If the power is interrupted for more than one hour, "0:00" will blink in the display when the power is restored. You will have to reset the date and clock again.

When a short beep sounds repeatedly

The VTR is in the timer recording or quick timer recording mode and the setting cannot be transmitted.

When the batteries are replaced

Reset the clock correctly.

When the clock on the Remote Commander is correct but the one on the unit is incorrect

- Open the upper cover of the Remote Commander and press the CLOCK SET button.
The correct time is displayed in LCD.
- Point the Remote Commander to the unit and press the TRANSMIT button.
The present time is correctly transmitted in hours, minutes and seconds.

Location and Function of Parts and Controls

Front panel

Refer to the pages indicated in ● for details.

AUDIO DUB indicator

HI-FI ST (stereo) indicator

PCM indicator

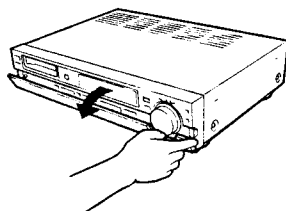
Remote sensor

Cassette compartment

ON/STANDBY switch and indicator

EJECT button

To open the lid
Hold the right end of the lid and pull it forward.



Tape transport buttons

◀◀ REW (rewind) button, ▷ PLAY (playback) button, ▶▶ FF (fast-forward) button, ■ STOP button, ||/▶ PAUSE/STILL button

Display window

PROGRAM +/- buttons

SHUTTLE A-B switch ②

EDIT STANDBY button and indicator ③

SYNCHRO EDIT button and indicator ④

EDIT SHUTTLE control and indicator ⑤

RECORDER button and indicator ⑥

PLAYER button and indicator ⑦

CL (reset) button

If the VTR does not operate even when pressing the operating button, press this button with a pointed object such as a ball point pen. When this button is pressed, all of the information stored in the VTR memory is cleared.

SHARPNESS control ⑧

Adjust the sharpness of the picture if necessary. Normally set this at the center detent position.

SLOW/STILL ADJ (adjustment) buttons ⑨

Adjust the still or slow-monitor picture if necessary.

SET button ⑩

NORMAL/CATV button ⑪

TUNING +/- buttons ⑫

CLEAR button ⑬

EDIT button ⑭

When editing a tape, press this button so that the EDIT indication lights in the display window.

AUDIO DUB button ⑮

Press to record on the PCM track of any recorded video cassette tape.

● REC (recording) button

Supplied accessories

Remote Commander
RMT-456 (1)



Audio connecting cord (1)
(phone 2 ↔ phone 2)



Video connecting cord (1)
(phone 1 ↔ phone 1)



Size AA (R6) batteries (2)



LANC cable (1)



75 ohm coaxial cable for TV (1)



DC in cord (1)



Screwdriver (1)



Front panel

AUDIO LINE IN (STEREO/BILINGUAL) button ①
Use this button when editing the bilingual broadcast recorded tape from another VTR.

REC MODE SP/LP (recording mode) button
This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode. The playback speed is automatically set regardless of the setting of this selector.

INPUT SELECT button
Press to display the desired input signal indication in the window.

TUNER: To record TV programs

LINE: To record video/audio signals from the LINE IN 1 or 2 VIDEO/AUDIO jacks or to dub only audio signals from LINE IN AUDIO or MIC jack.

REC LEVEL controls ②
Use to adjust the recording level.

When dubbing the audio signals, use to adjust the input level from the LINE IN AUDIO.

PHONES jack (stereo mini-jack) and LEVEL control
Connect stereo headphones. The volume can be adjusted with the LEVEL control.

MIC (microphone) jack (mini-jack) ③
To record from this jack, display "LINE" and "L1" or "L2" by pressing the INPUT SELECT button.

CONTROL L (LANC) jack (stereo mini-mini-jack)

LANC switch ④

M: Controls other peripherals or VTR with this VTR.

S: Controls this VTR with other peripherals or VTR.

About the ④

④ means the LANC connector. LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

ANT TV/VTR button

Press to view the program selected on the recorder. The VTR indicator appears in the display window (VTR mode). To view a TV program while recording another, press this button again. The VTR indicator disappears (TV mode).

COUNTER RESET button ⑤
Press to reset the tape counter to zero.

TIMER CHECK button ⑦
Press to check the contents of the timer presettings.

TIMER REC ON/OFF button ⑥

QUICK TIMER button ⑧

VPS (Video Program System) switch ⑨
Set to ON activate the VPS in the timer recording.

LINE IN (Input) 2 VIDEO/AUDIO jacks (phono jack)

DC OUT FOR CAMCORDER ⑩
Use supplied DC cable for COMCORDER connection.

AUDIO MONITOR selector ⑪

During playback or recording, set to the appropriate position to monitor the desired sound.

⑪CM: to play back the sound on the PCM track.

When nothing is recorded on the PCM track, the recorded sound on the standard track is played back regardless of the position of this selector.

MIX: to play back the sound on the PCM and standard tracks simultaneously.

STD: to play back the sound on the standard track.

Rear panel

×2 SOUND switch ⑫
To hear the sound in double speed playback, set the ×2 SOUND switch on the VTR to ON. The sound is also played back in double speed. If the sound is unnecessary, set the switch to OFF.

COMMAND MODE selector ⑬
When operating this VTR with the Remote Commander, select the same position as this on the Remote Commander.

AC power cord

COLOUR SYSTEM switch

Normally set to AUTO.

According to the TV program, colour system will be switched automatically to PAL or DDR SECAM. If the signal is too weak or the picture is distorted, set the switch to PAL. DDR SECAM programs will be displayed in black and white.

AUTO STEREO switch ⑭

Normally set it to ON.

ON: Automatically set to stereo or monaural broadcast.

OFF: Always in monaural mode even if being set to stereo broadcast.

LINE IN (Input) 1 VIDEO/AUDIO jacks (phono jack)
Connect to the video and audio outputs of a TV, VTR, CD player, etc.

AERIAL OUT socket
Connect the aerial input of the TV receiver.

AERIAL IN socket
Connect the aerial cable.

LOCAL/DX switch ⑮
Normally set to DX. If the TV signal is very strong, set the switch to LOCAL.

RF CHANNEL screw ⑯
If there is interference on the factory-preset channel for RF output and the output signal from this unit cannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

LINE OUT (output) VIDEO/AUDIO jacks (phono jack)
Connect to the video and audio inputs of a TV, VTR, amplifier, etc.

EURO-AV connector (21-pin) ⑰

Connect to the 21-pin connector of a VTR or a TV/monitor, or to the audio/video input of these units with an appropriate connecting cable.

Remote Commander RMT-456

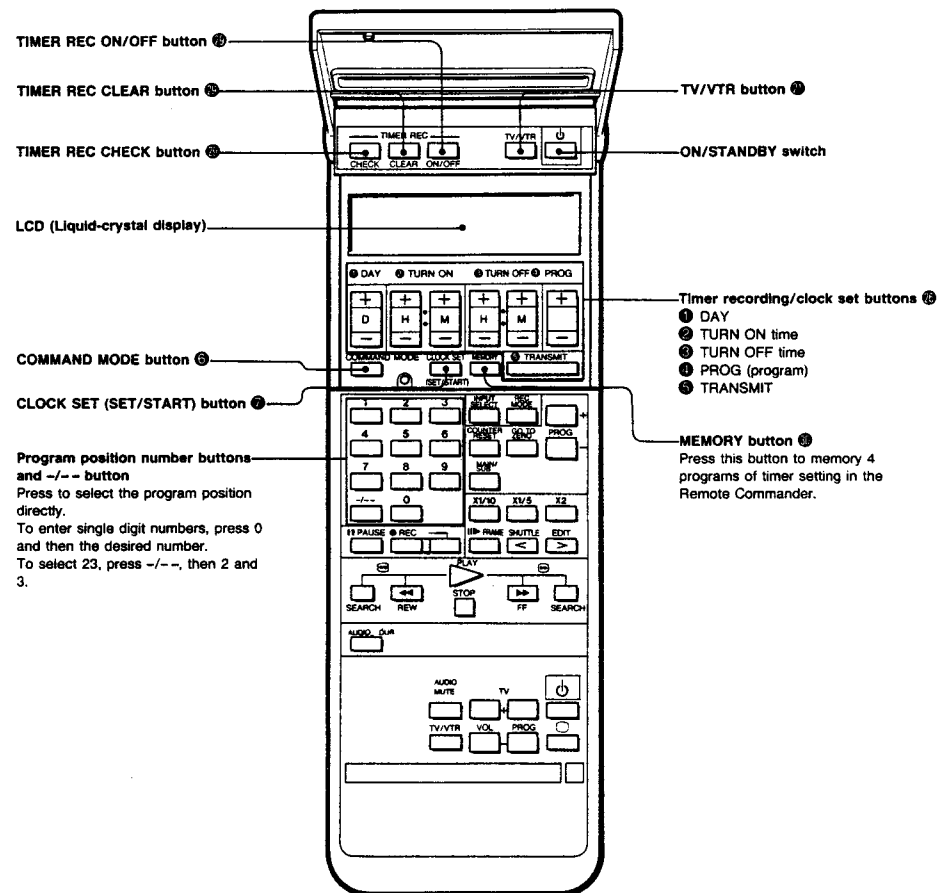
Almost all operations can be done with this Remote Commander.

Buttons on this Remote Commander have the same functions as those on the VTR.

- Operate the Remote Commander keeping the upper cover closed except when adjusting the Clock Setting or Timer Setting.
- INPUT SELECT button and REC MODE select button

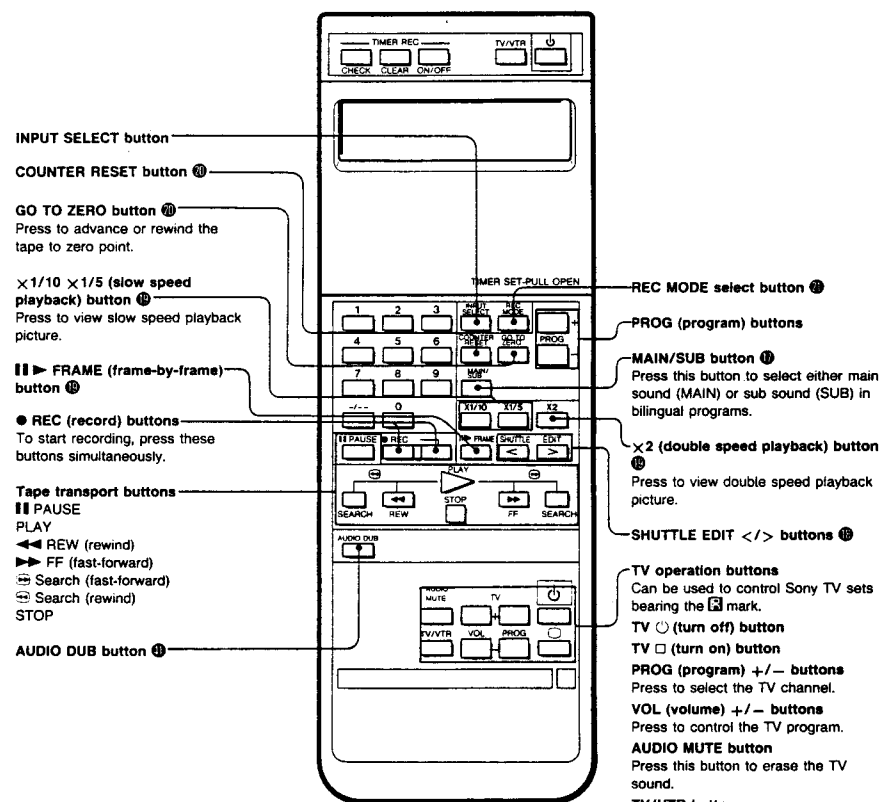
When the upper cover is closed, these are used for setting the input select and the recording mode at present respectively.

When opened, the input select and the recording mode to be preset are selected respectively by these buttons.

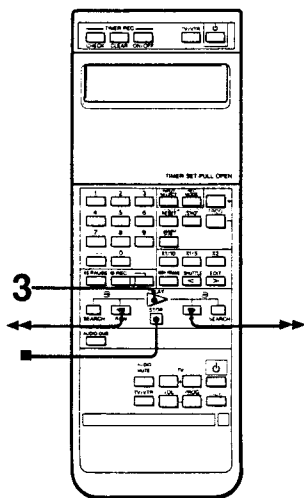
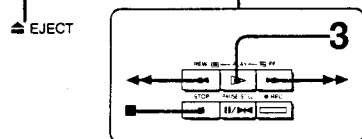
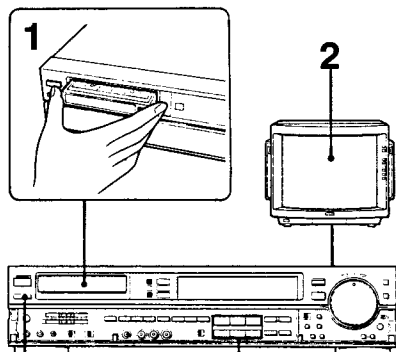


Remote Commander Precautions

Do not let sunlight or light from a powerful artificial light source fall directly on the Remote Commander sensor on the front panel as it may interfere with operations or damage the sensor.



Playback



Playback can be controlled with the identically marked buttons on both the unit and the Remote Commander. For details on connecting, see page 42.

Playing a Tape

- 1 Insert the cassette slowly into the unit. The power turns on automatically.
- 2 Turn on the TV and select the program, or select the input for the VTR.
- 3 Press the ▷ PLAY button. ▷ appears in the display window and playback starts.

Caution

Beware that children do not insert their fingers into the cassette compartment. Doing this may cause injury.

To stop playback

Press ■.

To rewind the tape

Press ◀◀ ◀◀ appears in the display window on the unit.

To advance the tape rapidly

Press ▶▶ ▶▶ appears in the display window on the unit.

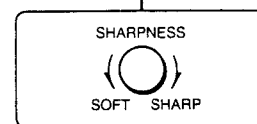
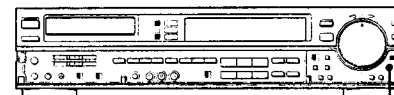
To eject the cassette

Press ▲ EJECT on the unit. Pressing the ▲ EJECT button when the VTR is turned off will turn the unit on, eject the cassette, and then turn it off again.

▲ EJECT does not function during recording or recording pause mode.

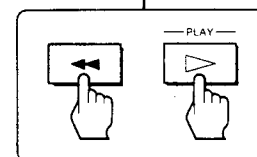
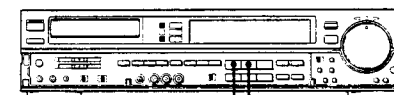
Note

When the end of the tape is reached during playback, the VTR automatically rewinds the cassette.



Picture adjustment

Turn the SHARPNESS control toward SOFT or SHARP. Normally set to the center of the control.



Playing back a tape from the beginning after rewinding - Auto Play

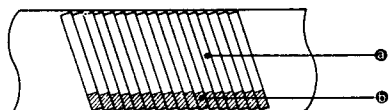
While pressing the ◀◀ REW button, press the ▷ PLAY button. The "AUTO" indication will be displayed in the display window on the unit.

To index through a tape

Press the COUNTER RESET button at the beginning of a tape to set the counter to "0H00M00S". A convenient way to search a desired scene later is to make a note of the counter reading at that point. (Refer to page 20.)

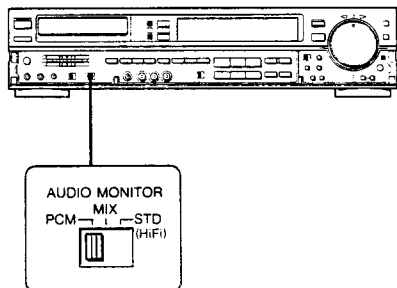
When a blank tape is played back,

The picture will not appear and the tape counter will not function.



Dubbed Tape Playback

Enlarged diagram of tape
 ① Standard track — Original sound
 ② PCM track — Dubbed sound

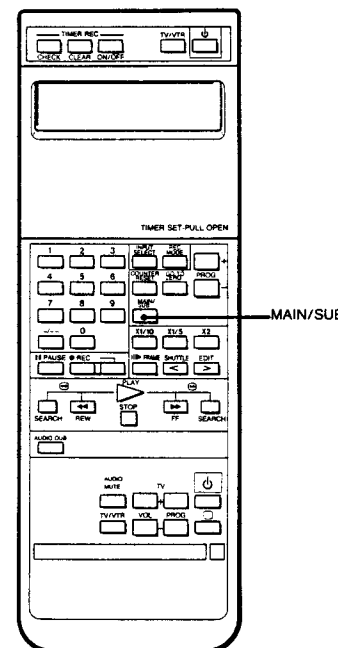


Sound to be played back	Position of AUDIO MONITOR selector
Dubbed sound	PCM
Original sound	STD
Both sounds mixed	MIX

When no sound during playback or the PCM indicator blinks:
 When a tape which has been recorded on a video camera recorder or a VTR without the PCM function is played back on this unit, the sound may not be heard or be heard only intermittently.
 In such a case, select STD on the AUDIO MONITOR switch. The PCM indicator may keep blinking but it will not affect the sound.

When a TV without VIDEO/AUDIO input is connected:
 To monitor the playback sound in stereo mode, connect a stereo system additionally.

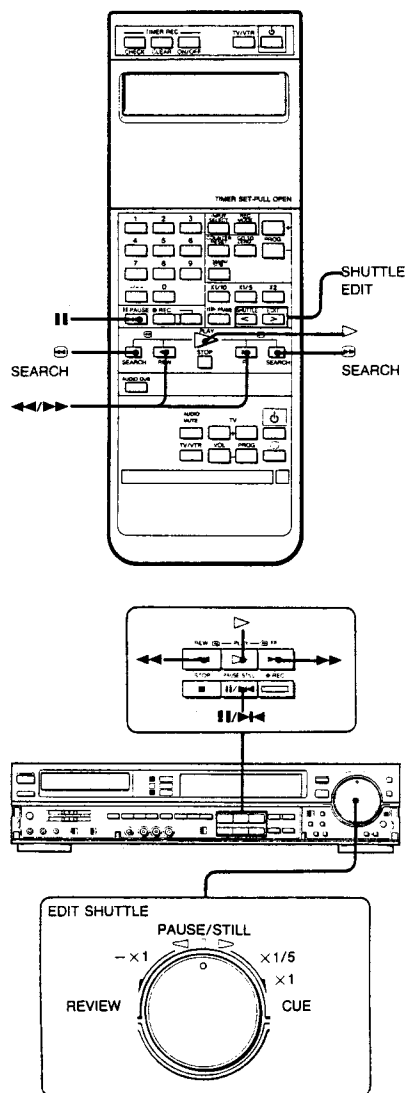
When no recording is on the PCM track:
 If the AUDIO MONITOR switch is selected to PCM or MIX, the standard track will be played automatically.



Selecting the Playback Sound of a Stereo/Bilingual Tape

Choose the desired sound to be played back with the MAIN/SUB button on the Commander.

Type of tape	MAIN/SUB button and indicator
Stereo	Each press changes the playback sound to: STEREO (stereo sound) ↓ L (left channel) ↓ R (right channel)
Bilingual	Each press changes the playback sound to: MAIN/ (main sound) ↓ SUB/ (sub sound) ↓ MAIN/SUB/ (main/left channel and sub/right channel)



Playing back in Various Modes

Still picture

Press the **II/PAUSE/STILL** button on the unit or **II PAUSE** button on the Commander during playback. The **II** will appear in the display window. To resume normal playback, press the **▷ PLAY** button, or the **II/PAUSE/STILL** button or **II PAUSE** button on the Commander again.

When the pause mode lasts for more than approximately 7 minutes, it will be automatically released and the VTR will resume the playback mode.

Locked picture search (Commander only)

Press the **SEARCH** **⊞** or **⊞** button during playback or in still picture mode. To resume normal playback, press the **▷ PLAY** button.

Picture search

Keep pressing the **◀◀ REW** or **▶▶ FF** button during playback or in still picture mode. Release the button for normal playback.

FR picture search

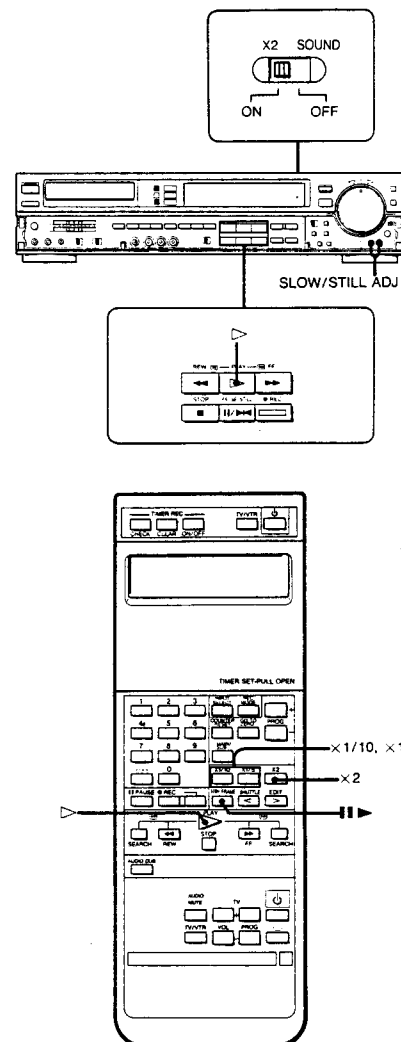
Press **▶▶** during fast-forward or **◀◀** during rewind mode. The fast-forward or rewind mode picture can be viewed while the button is pressed.

Using the EDIT SHUTTLE (Main unit only)

Various playback modes can be selected by holding the **EDIT SHUTTLE** in the position illustrated. Turn it clockwise for forward direction and counterclockwise for reverse direction. Releasing it will place the picture in the pause/still mode. To resume normal playback, press **II** or **▷**.

Using the SHUTTLE EDIT (Commander only)

Rewind playback (**<**) or normal playback (**>**) can be done by holding down the **<** or **>** button on the Commander in still picture mode. Releasing it returns the VTR to still picture mode.



Double speed playback (Commander only)

To view the double speed playback picture, press the **×2** button during playback or still picture mode. If the **×2 SOUND** switch on the rear panel of the unit is set to **ON**, the sound is also played in double speed. If **OFF**, no sound is heard.

To resume normal playback, press the **▷ PLAY** button.

Slow speed playback (Commander only)

Press the **×1/10** or **×1/5** button during playback or in still picture mode.

To resume normal playback, press the **▷ PLAY** button.

Frame-by-frame playback (Commander only)

Press the **II ▶ FRAME** button in still picture mode.

To resume normal playback, press the **▷ PLAY** button.

If the picture shakes during double speed playback or still picture:

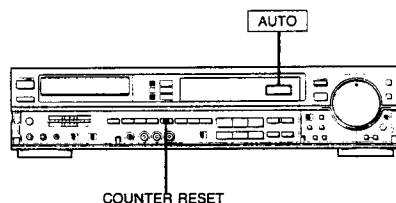
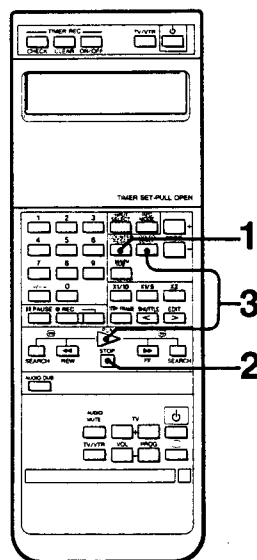
Press the **SLOW/STILL ADJ** buttons to adjust to the least shaking point.

If noise bars appear on the screen during slow

playback: Press the **SLOW/STILL ADJ** buttons to squeeze them out. Adjust this for each playback speed (SP/LP).

Notes

- Noise bars will appear and the sound will be muted in the high-speed playback mode.
- Horizontal bars appear at the top and bottom on the screen and sounds are not heard during **×1** playback.
- When a cassette recorded in **SP** mode is played back in still picture or picture search mode, the picture may appear in black and white or shake depending on the TV being used.
- When a cassette is recorded in **SP** mode, noise bars will be wider than those on **LP**-recorded cassettes.



Using the Tape Counter

The COUNTER RESET buttons on the unit and on the Remote Commander have the same function. Press the COUNTER RESET button at the beginning of the tape so that the counter shows "0H00M00S". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.

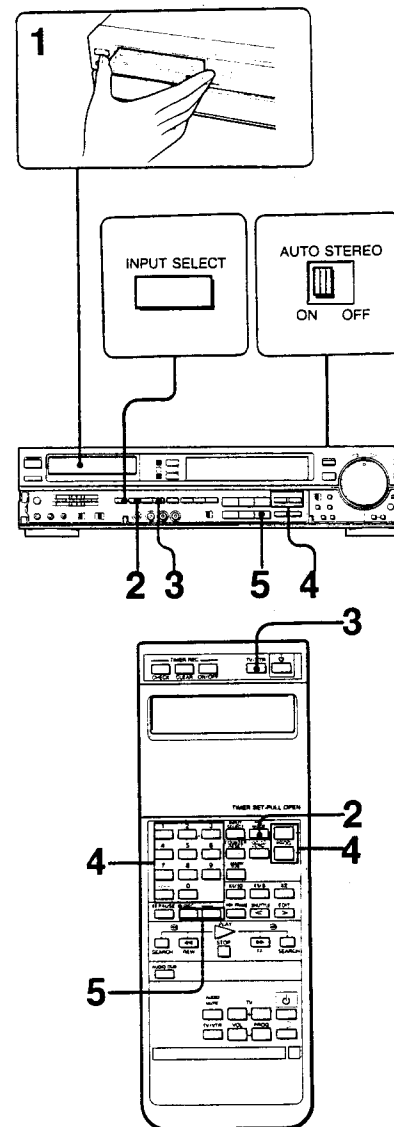
To locate a particular point on the tape (auto play)

- 1 During playback or recording, press the COUNTER RESET button at the point to be located later. The counter is reset to "0H00M00S".
- 2 When playback or recording is finished, press the STOP button to stop the tape.
- 3 Press the GO TO ZERO and PLAY buttons. The "AUTO" indication will be displayed. The tape is rewound or advanced to the approximate "0H00M00S" point and played back automatically.

Notes

- When only the GO TO ZERO button is pressed, the tape will stop at the approximate "0H00M00S" point (tape return).
- The GO TO ZERO functions only when the counter reading is beyond ± 1 minutes.
- The counter reading and the point of the tape may not correspond exactly. Use the counter as a guide.
- The counter does not operate for a blank, unrecorded portion of a tape.
- There will be a time lag of several seconds on the counter reading after repeated fast-forward and rewind operations.
- There will be also a time lag of several seconds when the tape recorded in LP and SP modes mixed or the tape having a blank portion between the recorded portions is played back.

Recording a TV Program



Before recording

- Turn on the TV and select the channel for the unit or select the input for the VTR*.
- Press the INPUT SELECT button so that the TUNER indication appears.
- Set the AUTO STEREO switch to ON.

* If your TV/monitor is equipped with video/audio inputs, select the correct input on your TV/monitor.

Operation

- 1 Insert a cassette. The VTR will be turn on.
- 2 To select the recording mode, SP or LP. Press the REC MODE button.
- 3 Select VTR on the TV/VTR button when the VTR is connected to TV without video/audio input jacks. (VTR connection is made via the AERIAL OUT socket.) The "VTR" indication will be displayed.
- 4 Select the program position to be recorded.
- 5 Start recording by pressing the REC button(s). To do this on the Commander, press both REC buttons simultaneously.

To stop recording

Press the STOP button.

To stop recording for a moment:

Press the PAUSE/STILL or PAUSE button on the Commander.

To resume recording, press the button once again. (To protect the tape and video heads, the pause mode is cancelled after about 7 minutes and the unit will enter the stop mode automatically.)

When the end of the tape is reached by recording, the VTR automatically rewind the tape to the beginning and enters the stop mode. The power remains on.

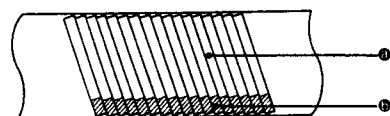
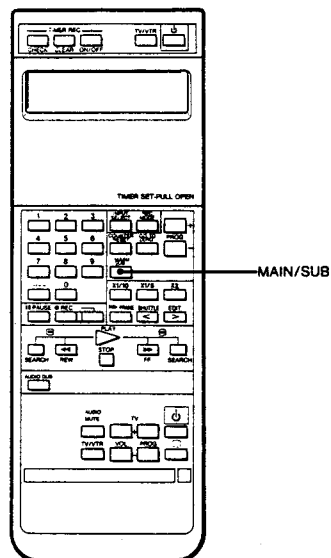
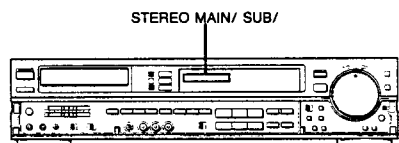
If the tape is ejected when the REC button(s) are pressed

The tab on the cassette is slid out. Slide the tab in, or use a new cassette.

Viewing One TV Program While Recording Another

Press the TV/VTR button so that the VTR indication disappears. Select the channel you want to view on the TV.

If your TV is equipped with a TV/VTR INPUT selector, simply select TV and then the desired channel on the TV.



Recording Stereo or Bilingual

This VTR receives and records stereo/bilingual programs based on the "Zweiton" system adopted in West Germany. To receive "Zweiton" broadcasts, select AUTO STEREO switch to ON.

When receiving a stereo program

The "STEREO" indication will be displayed in the display window.

The MAIN/SUB button does not function for the stereo program of the Zweiton system.

When recording bilingual program

The "MAIN/" indication will be displayed in the display window.

If desired, it is possible to select the monitor sound. Press the MAIN/SUB button repeatedly until the desired sound is heard. The sound is selected cyclically in the following order.

Display	Sound to be heard
MAIN/	Main sound
SUB/	Sub sound
MAIN/ SUB/	Main sound on the left channel and sub sound on the right channel

Recording is made as follows:

A stereo or bilingual program will be recorded on the standard track (Hi-Fi stereo) and PCM track as listed below, regardless of the sound being monitored.

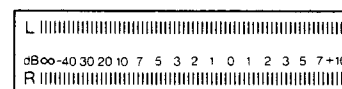
Track	Sound to be recorded	
	Stereo	Bilingual
PCM and Standard (Hi-Fi)	Left channel	Left channel
	Right channel	Right channel

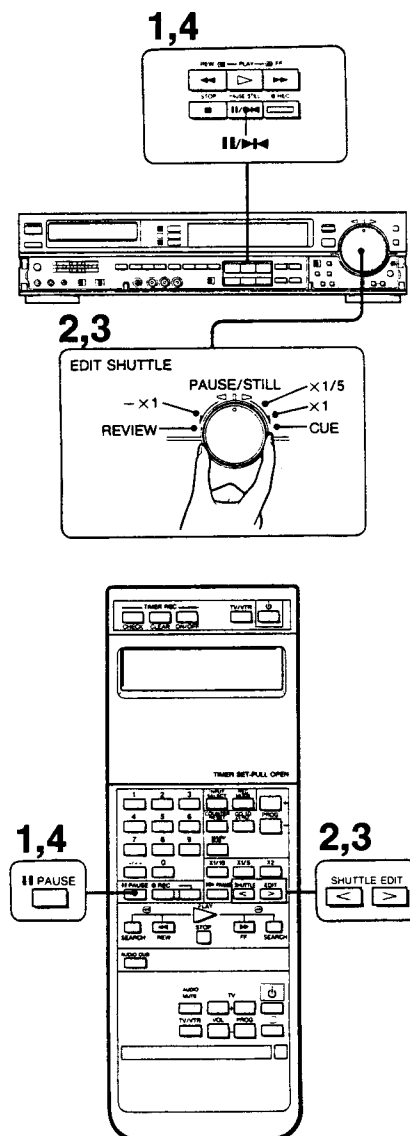
If the received stereo signals are noisy

Set the AUTO STEREO switch to OFF.
The sound will be monaural.

Adjusting the Recording Level

- Recording from the tuner on the unit
To obtain the best recorded sound, set the REC LEVEL controls at 5 position.
- Recording from an external sound source
Adjust the level on the REC LEVEL controls according to the source.
- Appropriate recording level
Medium or lower frequency signals from a source (e.g.vocal)
Adjust so that the element at the 0 dB level lights at the highest signal level.
Medium or higher frequency signals from a source (e.g. trumpet, treble sound of violin)
Adjust so that the element at the -1 to -3 dB level lights at the highest signal level.





Cutting Out a Scene by Recording Over It

Overview

Using the recording pause mode, you can stop recording when an unwanted scene appears and then resume recording smoothly.

To easily reach an unwanted scene by rewinding and/or advancing the tape, use the SHUTTLE EDIT buttons on the Commander or the EDIT SHUTTLE on the unit. The unit will then enter the recording pause mode and allow you to resume recording smoothly.

Operation

- 1 While recording TV broadcast, press **PAUSE** on the Commander or the **PAUSE/STILL** on the unit. The unit will enter the recording pause mode.
- 2 Rewind the tape with the **SHUTTLE EDIT </>** buttons on the Commander or the **EDIT SHUTTLE** control on the unit to locate the point to resume recording.

Using the EDIT SHUTTLE

Turn counterclockwise to search in reverse. Turn clockwise to search in forward. The playback speed is as indicated in the illustration.

Using the SHUTTLE EDIT </>

Press < to reverse the picture (×1 speed). Press > to advance the picture (×1 speed).

- 3 Release the **SHUTTLE EDIT** button or the **EDIT SHUTTLE** control at the desired point. The unit enters the recording pause mode after approximately 2 seconds.

- 4 Press the **PAUSE** button on the Commander or the **PAUSE/STILL** button on the unit when you wish to resume recording.

Note

To protect the tape and video heads, the pause mode will be automatically released after about 7 minutes and the unit will enter the stop mode.

PCM Audio Recording

Only the audio signals are recorded on the PCM track.

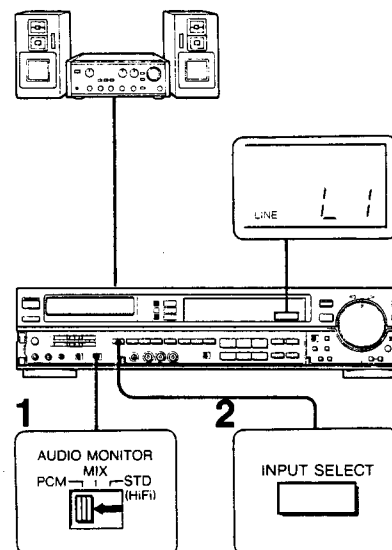
Normally adjust the REC LEVEL control to 5 position. To record both the video and audio signals, connect the video equipment to the LINE IN VIDEO jack. Then audio signals from the audio system are recorded on PCM track and video signals via LINE IN VIDEO are recorded on the standard track.

For details on connecting, see page 44.

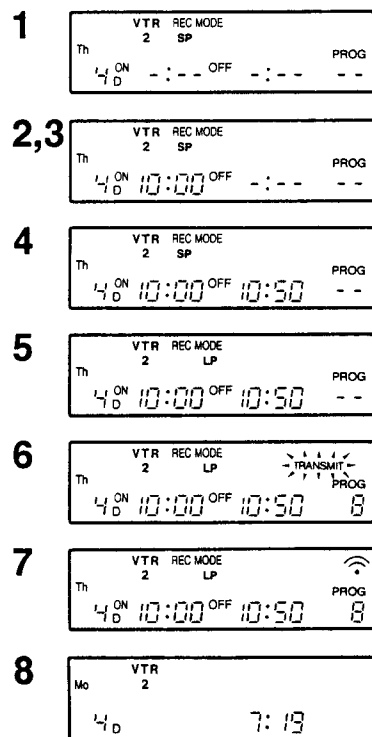
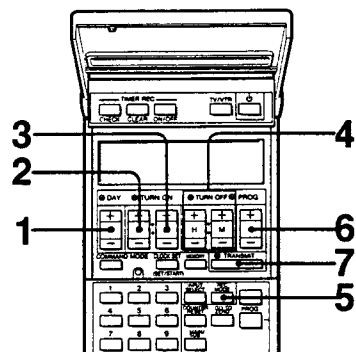
- 1 Set the **AUDIO MONITOR** selector to **PCM**.
- 2 Press the **INPUT SELECT** button. The "L1" indication will appear in the display window.

Note

When a digital audio processor that does not conform to the 8mm format standard is used, select the SP mode and press the EDIT button so that the "EDIT" indication lights.



Timer-Activated Recording



Set the program on the Commander, then transmit it to the unit.

The timer can be set to record up to six timer setting programs on certain days or every day within one month. Presetting can be done even if power is turned off or the VTR is in recording pause mode.

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20				

Today

Possible days for recording

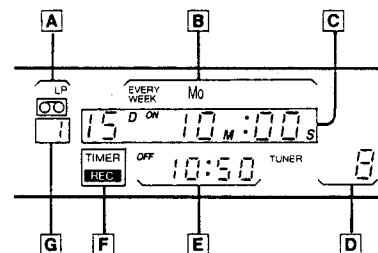
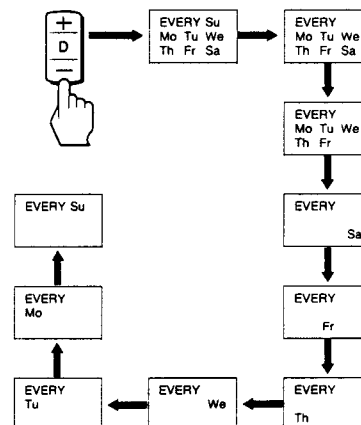
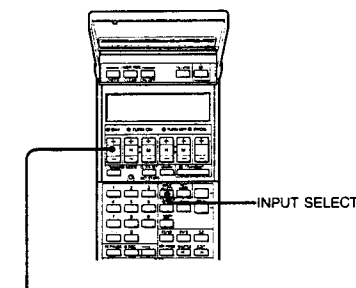
Before timer setting

- Check that the clock on the unit is correct and that it corresponds to the clock on the Commander.
- Make sure the cassette is long enough to record all of the programs.
- Be sure the safety tab of the cassette has not been filed out.
- Press the INPUT SELECT button so that the TUNER indication appears.

Setting the Timer

Example: To record a program broadcast from 10:00 to 10:50 on Thursday, July 4, 1991 on program position 8 in LP mode.

1. Open the cover of the Commander and press D until 4 appears. The day of the week, Th (Thursday) is automatically set.
2. Set the hour to start recording with ② TURN ON H.
3. Set the minute to start recording with ② TURN ON M.
4. Set the hour and minute to end recording with ③ TURN OFF H and M.
5. Set the recording mode, SP or LP, with the REC MODE button.
6. Select the desired program position with PROG button. The "TRANSMIT" indicator blinks to indicate that all of the items are entered.
7. Point the Commander to the VTR and press TRANSMIT. Transmitting should be done within five minutes. The VTR produces beep sound and enters the recording standby mode.
8. Close the cover of the Commander so that the present time appears on the LCD display. The VTR turns itself on and starts recording at the selected time, then turns off after the recording ends.



To set another program
Repeat steps 1 to 7 before 8.

To record from the equipment connected to LINE IN VIDEO/AUDIO 1 or 2 jacks
Press INPUT SELECT in step 6 on the previous page to change the indication from PROG to LINE, L1 or L2. Then select as connected.

Making Daily/Weekly Recording

This VTR can be preset to record the same program each day of the week (daily recording) or the same program on a specific day of the week.

Instead of step 1 under "Setting the Timer", press D - on the Commander to change the LCD in the order shown in the illustration. When the desired recording mode is set and transmitted to the VTR, the corresponding indicator lights in the display window.

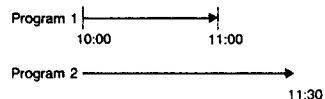
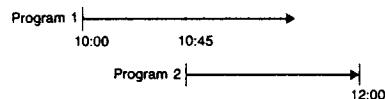
Notes

- Active buttons during timer-activated recording
 - TIMER CHECK button
 - COUNTER RESET button
 - TV/VTR button (Viewing another program during recording one program is possible.)
- After a preset recording is over, the numbers of presettings are moved up in turn.

Indication in the Display Window on the Unit

A few second after the transmitting, press the TIMER CHECK button then indication will appear as shown in the illustration.

- A Rec mode SP/LP (Tape speed)
- B A day of the week
- C Starting time
- D Channel to be recorded
- E Ending time
- F TIMER REC indication (Turns on when timer setting program is set. Shown during the power turns off.)
- G Program order number (6 timer settings available)



When the Timer Settings Overlap

If the settings for two programs overlap

The recording of program 2 will begin before the program 1 is finished.

In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of two programs are the same

The recording of the program having the lower program number (ex. program 1) will be made. The memory of the program having the higher number will be cleared.

In the illust.: (The coloured portion will not be recorded.)

To record using the entire tape

Skip the turn-off time setting or set it to a time after the tape will reach the end.

Note

If the starting time of the former setting and the ending time of the latter setting are the same, about twenty seconds of the last portion of the former will be missing.

Caution

If a short beep occurs when TRANSMIT is pressed A short beep indicates that the transmission was not received by the VTR. Press TRANSMIT again before closing the cover, then check the items below.

- An illogical setting has been made.
- Timer setting can only be performed when the VTR is turned off, or in the stop, or timer recording mode.
- Six timer settings have already been made.
- The tape is at its end.
- The clock on the unit does not correspond to the one on the Commander.

When the cassette is ejected by pressing the TRANSMIT button or the TIMER REC ON/OFF button

- The opening on the cassette rear is red (closed). Slide the tab in to open, or insert a new cassette.

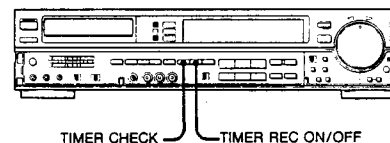
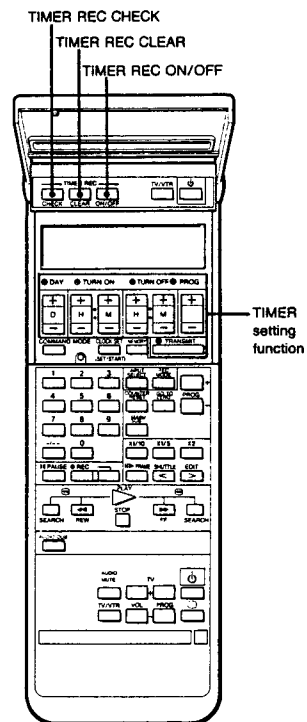
When the TIMER REC ON/OFF button is pressed "TIMER REC" does not appear the display window on the unit

- The cassette for recording is not inserted.
- The cassette is at its end.
- The timer setting is not set on the unit.

If a power interruption occurs

Recording will stop and power will turn off.

If the power interruption lasted for about 1 hour or less and recording time remains, recording will resume after the power comes back on.



Checking the Timer Setting

Press the TIMER REC CHECK button one time after another to display set programs in order.

Changing a Preset Timer Setting

- 1 Press the TIMER REC ON/OFF button to clear the TIMER REC indication.
- 2 Press the TIMER REC CHECK button to select the program number to be changed.
- 3 Set another program with the Commander then press the TRANSMIT button.
- 4 The new program has been set and "TIMER REC" indicator on the unit turn on.

Clearing a Preset Timer Setting

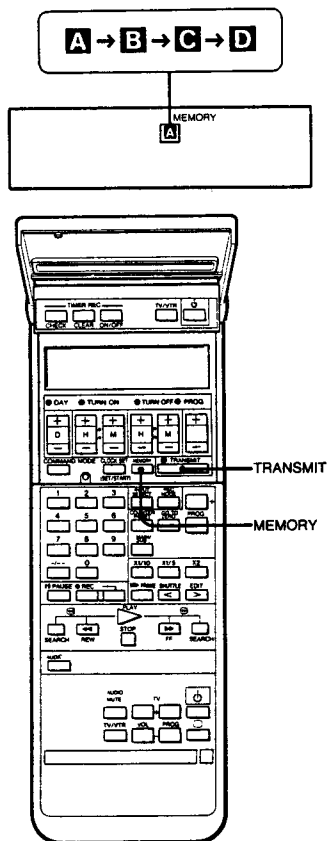
- 1 Press the TIMER REC ON/OFF button to clear the TIMER REC indicator.
- 2 Press the TIMER REC CHECK button, then select the program number to be cleared.
- 3 Press the TIMER REC CLEAR button.
- 4 When other timer settings exist, press the TIMER REC ON/OFF button to turn the "TIMER REC" indicator on.

Stopping Timer-Activated Recording in Progress

Press the TIMER REC ON/OFF button. Recording will stop.

Using the Unit before Timer-Activated Recording Starts

- To start using the VTR
Press the TIMER REC ON/OFF button to turn off the "TIMER REC" indication in the display window on the unit.
- To quit using the VTR
Press the TIMER REC ON/OFF button to turn on the "TIMER REC" indication in the display window on the unit.



To Store the Frequently Used Items in the Commander

The items selected for one timer recording program will be erased from the LCD when the Commander cover is closed. However, the turn-on/turn-off time and the program position of up to four programs can be stored in the Commander to be recalled later. This enables you to quickly access the most frequently used items, especially your favorite weekly programs. The recording date will automatically be shifted to the next week after the recording is over. It will be cleared from the program list when recording is over.

Operation

Example: To store a timer recording data in MEMORY A.

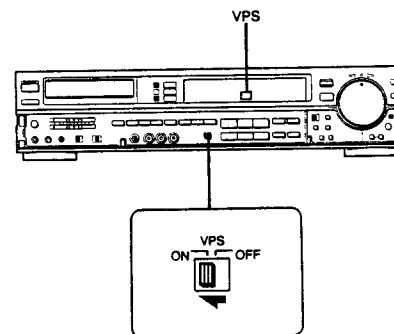
- 1 Press **MEMORY** to indicate **MEMORY A**.
- 2 Set all of the items for timer recording referring to "Timer-Activated Recording-Setting the timer."
- 3 Press **MEMORY** to change the Indication to B, C, or D, and repeat step 2 for other programs. The items set will be kept in the memory even when the Commander cover is closed.

Recalling and Changing the Items

- 1 Press **MEMORY** to call up the desired memory indication (A, B, C, or D).
- 2 Make whatever changes necessary.
- 3 Press **TRANSMIT**.
The VTR enters the timer recording standby mode.

How to clear a memory

A timer setting memory can not be cleared. But it will be replaced with new one(s) by pressing **MEMORY** to call one(s) of A to D.



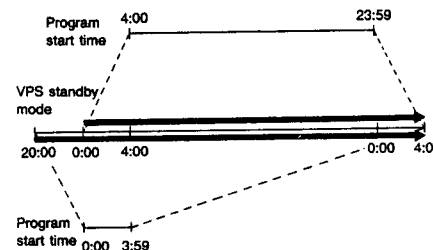
About the VPS Switch

To avoid missing a timer-activated recording because of a delay in the transmission sequence or a change in the program schedule, the West German broadcasting stations have agreed to transmit a special code, called the VPS (Video Program System) code, together with the TV program. The VTR is equipped with a VPS switch which allows you to preset recording times and insures that your programs will be recorded regardless of delays.

- 1 Set the **VPS** switch to **ON**.
The VPS indication appears in the display window.
- 2 Set the timer to the time listed in the **VPS program guide** which corresponds to the program you want to record.

Notes

- The VPS function can be turned on only when the **TIMER REC** indicator is turned off.
- If the VPS signal was not received on the VTR because it was too weak or because the station failed to transmit, timer recording will be performed without the VPS function regardless of the VPS indication.
- The recording will stop when the VTR receives a VPS program interruption code during recording, for example, when an urgent news bulletin was inserted. As soon as the interrupted program resumes, recording will continue.



VPS Standby Mode

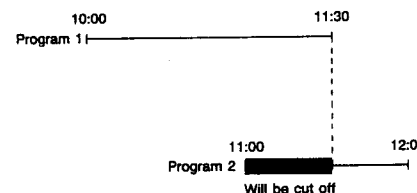
The VTR will be turned on to standby for VPS recording before the turn-on time and remains turned on past the preset turn-on time until the VPS signal is received to prepare for any change in the actual broadcast time.

When the VPS timer recording is set for a program which is expected to start between 4:00 and 23:59?
The VTR will be turned on at 0:00 that day and will keep on waiting for the VPS signal until 4:00 of the next day.

When the VPS timer recording is set for a program which is expected to start between 0:00 and 3:59?
The VTR will be turned on at 20:00 the day before the recording day and will keep on waiting for the VPS signal until 4:00 on the next day.

If the actual recording time overlaps with the next timer recording program

There may be cases when the actual broadcast time of two timer recording programs overlap owing to the shift made by the VPS signal. In this case, the program that was broadcast first always has priority. The recording of the second program will begin only after the first program is over.



Quick Timer Recording

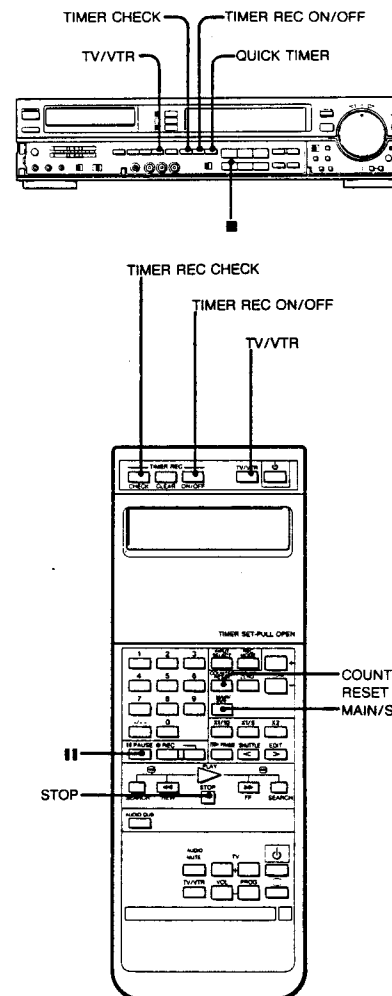
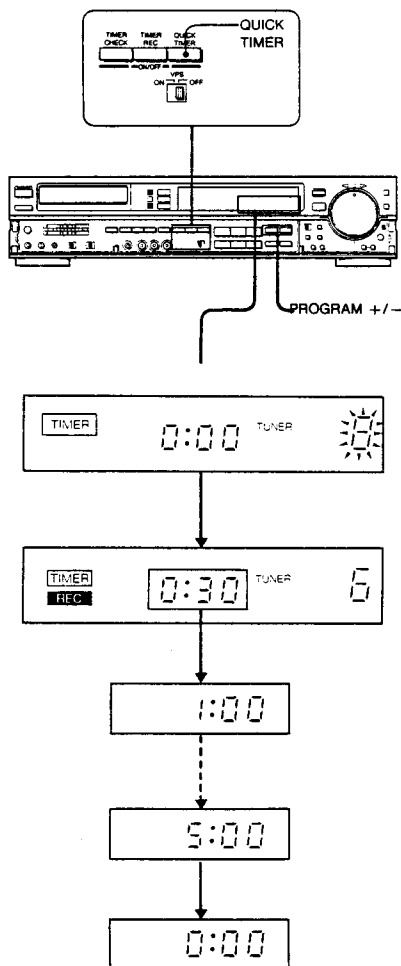
What is Quick Timer Recording?

With the quick timer recording function, simple and rough timer recordings can be made. The timer can be set to operate within 5 hours in units of 30 minutes.

Operation

- 1 Check the following items.
INPUT SELECT : Displays "TUNER" in the window
REC MODE SP/LP : SP or LP
REC LEVEL : Approximate standard on 5 position
- 2 If the cassette is not inserted, insert it.
- 3 Press the QUICK TIMER button
 The channel can be changed while the channel indicator is blinking (for about 25 seconds).
- 4 Press the QUICK TIMER button repeatedly to select recording time.
 Each press of the button increases the preset recording time up to 5 hours in units of 30 minutes.
- 5 When the TIMER COUNTER counts down to "0:00", the VTR is stopped and the power is turned off.

During quick timer recording, the recording time can be changed by pressing the QUICK TIMER button. During recording, the time displayed will count down in units of one minute.



Function available during Quick Timer Recording

Stopping recordings in progress

Press the TIMER REC ON/OFF button.
 (The ■ STOP button does not work.)

Changing recording time

Press the QUICK TIMER button

Checking the timer

Press the TIMER CHECK button. (Preset programs will be displayed in the window on the unit.)

Resuming "0H00M00S" on the counter preset program
 Press the COUNTER RESET button.

Monitoring another channel

Press the TV/VTR button.

Monitoring bilingual sound

Press the MAIN/SUB button.

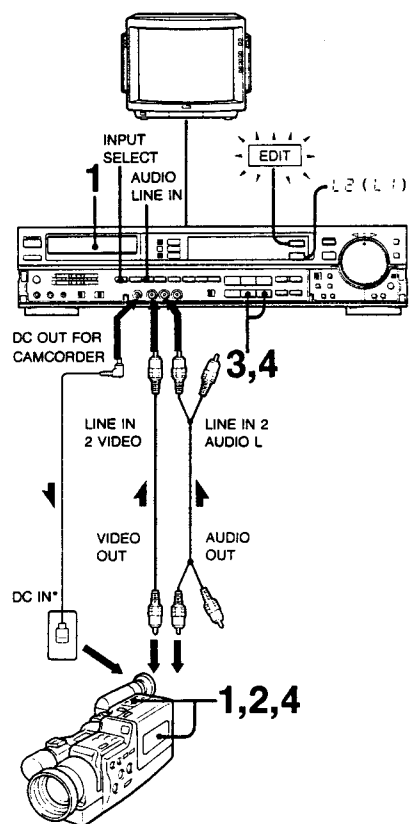
Caution

- The QUICK TIMER button does not work during the timer setting standby mode. Press the TIMER REC ON/OFF button to clear the "TIMER REC", then press the QUICK TIMER button again.
- When the opening on the cassette rear is red (closed), the tape cannot be recorded. Then, if the QUICK TIMER button is pressed, the cassette will be ejected. Insert a cassette with its opening not closed (not red) and press the QUICK TIMER button again.

If a power interruption occurs

Recording will stop and power will turn off.
 If the power interruption lasted for about 1 hour or less and recording time remains, recording will resume after the power comes back on.

Editing Tapes



▲ shows the direction of the signal flow.

To Edit the Entire Tape to Another Tapes

When a video camera recorder or another VTR is connected to this VTR via the CONTROL L (LANC) jack, the synchronized editing function can be used (see page 38).

(1) Editing a tape on this VTR from a video camera recorder or another VTR

Example: Using a video camera recorder as the player via the LINE IN 2 AUDIO/VIDEO jack on this VTR.

Preparation

- Connect the equipment involved. If the video camera recorder is a monaural type, connect the white plug (AUDIO L) of the supplied connecting cable to the audio jack. (When stereo, connect to L and R.)
- Select the REC MODE (tape speed) on this VTR, SP or LP, using the REC MODE SP/LP button.
- Press the INPUT SELECT button to select LINE IN 2. Then "L2" will appear in the display window on this VTR. (When connected to LINE IN 1, press The button to select LINE IN 1 and to display "L1" in the display window.)
- Press the EDIT button so that "EDIT" appears in the display window.
- Adjust the REC LEVEL control to around 5.

Operation

- 1 Turn on the power of the equipment to be used. Insert the original cassette into the player and a new cassette into this unit.
- 2 Set the player to the playback pause mode and set the EDIT button to ON.
- 3 Set this unit to the recording pause mode.
- 4 Release the pause modes simultaneously.

Notes

- When the player is a stereo type, connect the audio plugs to the left and right jacks.
- LINE IN 1 VIDEO/AUDIO can be also connected to for use.

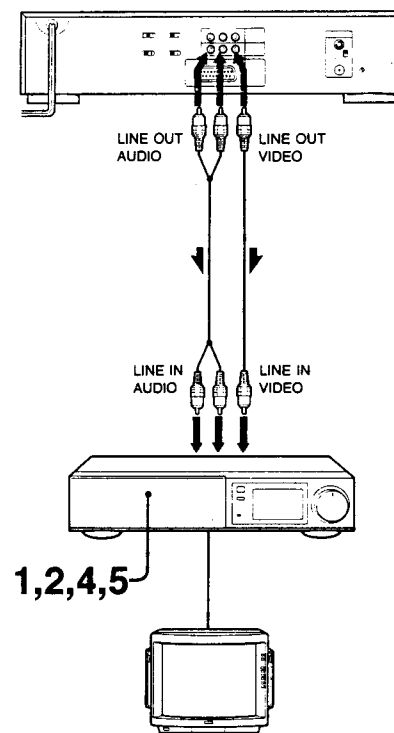
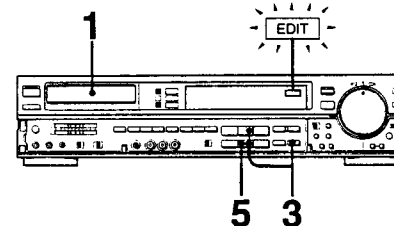
Editing from a tape on which the bilingual broadcast is recorded

When editing on this VTR via VIDEO/AUDIO LINE IN jack from another VTR, press the AUDIO LINE IN button to display "MAIN" in the display window. Then the MAIN/SUB sound is recorded on both standard and PCM tracks.

After editing, press the button again to display "STEREO".

- Playback the tape on the other VTR with displaying MAIN/SUB.
- Refer to the instruction manual of the other VTR.

* DC in cord (supplied) supplies DC power for the Sony 8mm video camera recorder directly.



▲ shows the direction of the signal flow.

(2) Editing a tape on another VTR from this unit

When this unit is the player and another VTR is the recorder:

Operation

- 1 Turn on the power of the equipment to be used. Insert the original cassette to this unit and a new cassette to another VTR.
- 2 Set the input select switch of another VTR to LINE.
- 3 Set this unit to the playback pause mode and press the EDIT button. The "EDIT" indication will light in the display window.
- 4 Set another VTR to the recording pause mode.
- 5 Release the pause modes simultaneously.

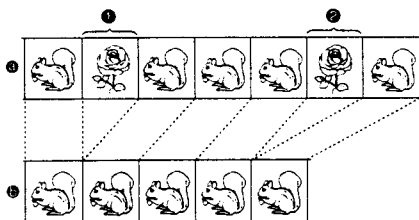
The EDIT button

When editing a tape, press this button so that the "EDIT" indication lights in the display window. Deterioration of picture quality will be avoided. Press again after editing.

The SHARPNESS control will not function when the EDIT button is pressed.

Notes

- Avoid repetition of editing tapes, as the picture and tone quality will be impaired noticeably for newly edited tapes.
- When you make the recording and playback connections simultaneously to the same VTR, noise may come out.
- When another VTR is a monaural type, use the optional RK-C72 connecting cable.



Editing only Desired Scenes

Cutting out unnecessary scenes
If another VTR has the CONTROL L (LANC) jack, the synchronized edit function can be used (see page 38).

- ① original tape
- ② edited tape
- ③ cut out
- ④ cut out

Example: Using a video camera recorder as the player via the LINE IN 2 AUDIO/VIDEO jack on this VTR.

Preparation

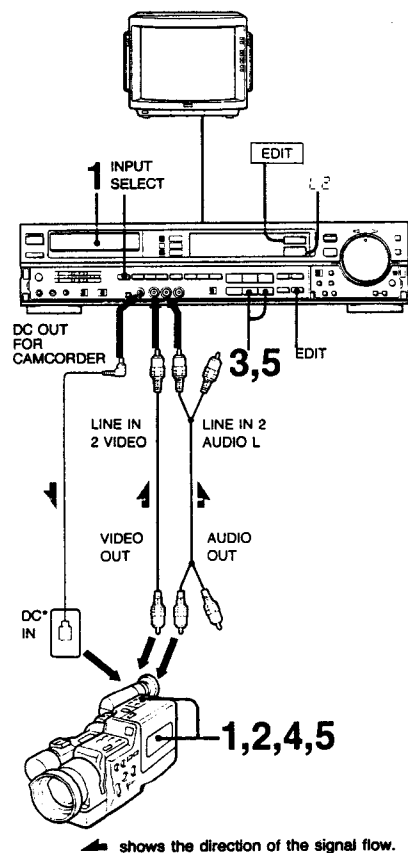
- Select the tape speed, SP or LP, on this VTR using the REC MODE selector.
- Press the INPUT SELECT button to select LINE IN 2, then "L2" will appear in the display window on this VTR. (When connected to LINE IN 1, press to select LINE IN 1, then "L1" will appear in the display window.)
- Set the EDIT button to ON then "EDIT" will appear in the display window.
- Adjust the REC LEVEL control to around 5.

Operation

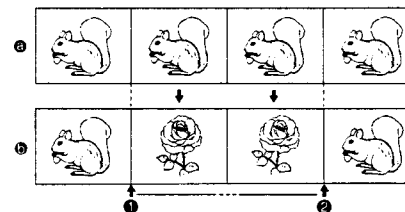
- 1 Turn on the power of the equipment to be used. Insert the original cassette to the player and a new cassette into this unit.
- 2 Set the EDIT switch to ON.
- 3 Edit the tape while viewing the playback picture, and set this unit to the recording pause mode at the point where no picture is recorded.
- 4 Set the player to the playback pause mode at the point where the desired picture is recorded.
- 5 Release the pause modes simultaneously.

Repeat steps 4 to 5 for recording other desired scenes.

* DC in cord (supplied) supplies DC power for the Sony 8mm video camera recorder directly.



▲ shows the direction of the signal flow.



Insert Editing

Inserting another scene into a recorded tape (original tape) is called "Insert Editing". This technique is used to replace an unnecessary scene with another one.

If the other VTR has a CONTROL L (LANC) jack, the synchronized edit function can be used.

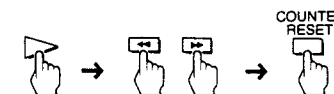
- ① original tape
- ② edited tape
- ③ starting point
- ④ ending point

Preparation

- Set the REC MODE SP/LP to the same mode of the recorded tape (original tape).
- Press the EDIT button so that appears in the display window.
- Adjust the REC LEVEL control to around 5 position.

Operation

- 1 Turn on the power of the equipment to be used. Insert the cassette with the scenes into the player. Insert the original cassette into this VTR.
- 2 Locate the ending point on the original tape by pressing ◀◀ REW or ▶▶ FF button during playback. Then press the COUNTER RESET button (0H00M00S).



- 3 Locate the starting point on the original tape by pressing ◀◀ REW button during playback. Set this VTR to the recording pause mode.



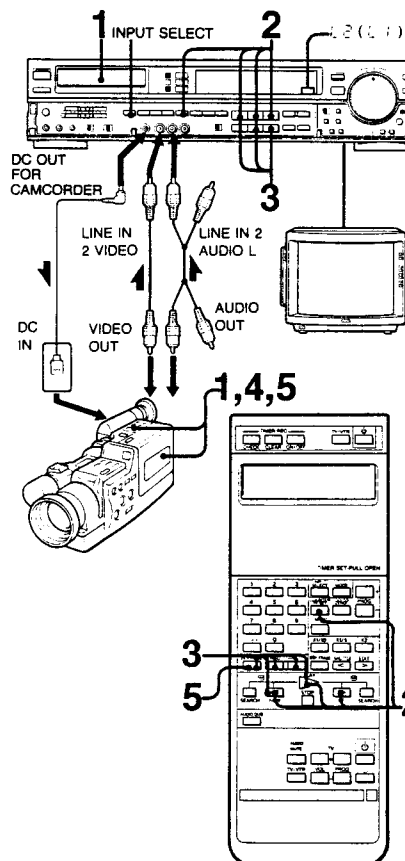
- 4 Locate the starting point of the scene to be inserted on the player and set it to the playback pause mode.
- 5 Release the pause modes simultaneously. The recording stops automatically at the ending point (0H00M00S).

For better editing

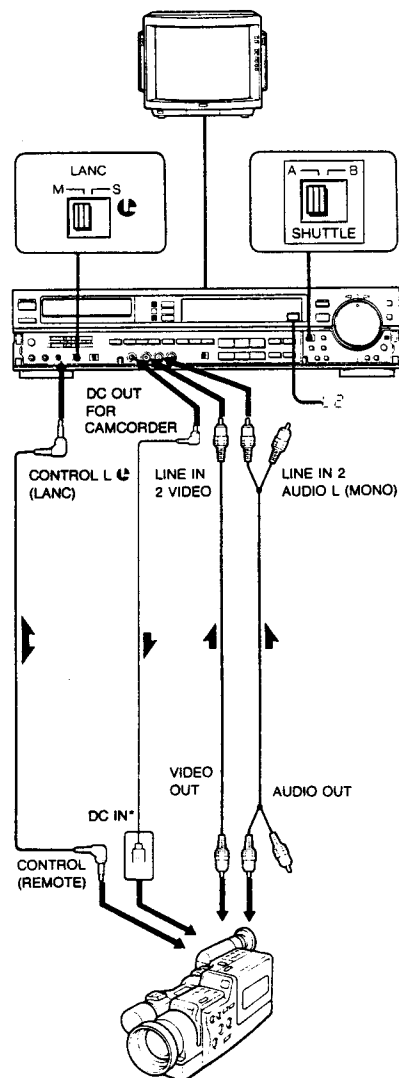
Release the playback pause mode a little earlier than the recording pause mode.

Notes

When the edited tape is played back, the picture may be disturbed momentarily at the ending point.



Synchronized Editing



▲ shows the direction of the signal flow.

Overview

When a Sony VTR with the CONTROL L (LANC) jack or a video camera recorder is connected, the synchronized editing function can be used. This function allows one VTR to control another VTR while editing. (Connect to the LINE IN 2 AUDIO/VIDEO on this VTR.)

LANC switch

This switch is used to select control of the other VTR with this VTR, or control of this VTR with the other VTR.
M: Controls the other VTR with this VTR.
S: Control this VTR with the other VTR or editor.
 When both VTRs have a LANC switch, decide which is to be M and which is S. Then select the LANC switch on both VTRs accordingly.

Selecting SHUTTLE A-B switch

Select the SHUTTLE A-B switch according to the type of VTR connected to this VTR.

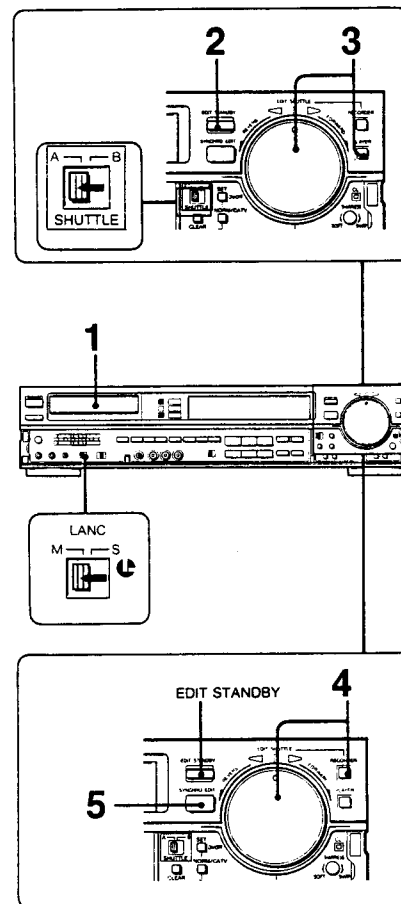
- A: The player VTR or camcorder without the JOG/SHUTTLE controls the other VTR (recorder) and any option is not applicable.
- B: The player VTR with the JOG/SHUTTLE controls the other VTR or an option is applicable.

Connection

Example: When a video camera recorder is used as the player

Notes

- When the video camera recorder is a monaural type, connect the white plug of the supplied connecting cable to the AUDIO L jack. (When stereo, connect to L and R.)
- The power for the Video Camera Recorder (DC 7.5 V 1.6 A) is supplied from the DC OUT FOR CAMCORDER jack on the unit.
- DC in cord (supplied) supplies DC power for the Sony 8mm video camera recorder directly.



Preparation

- Select the tape speed, SP or LP, on REC MODE SP/LP button on this VTR.
- Select A on the SHUTTLE A-B switch.
- Select M on the CONTROL L switch.
- Connect the Video Camera Recorder to the LINE 2 jack.
- Adjust the REC LEVEL control to around 5 position.

Operation

- 1 Turn on the power of the equipment to be used. Insert the cassette.**
 Insert a cassette for recording into this VTR and a recorded cassette into the other VTR.
- 2 Press the EDIT STANDBY button.**
 The EDIT STANDBY indicator and the player indicator will light. The LINE IN switch is set automatically to LINE IN 2 (L2).
 The Video Camera Recorder (player side) enters the playback pause mode and this VTR enters the recording pause mode.
 The picture from the player will be displayed on the screen.
- 3 Search for the starting point to be recorded on the player.**
 If the PLAYER button indicator does not light on, press the PLAYER button to turn the indicator on. Then search for the starting point of the scene to be recorded on the player tape using the EDIT SHUTTLE control.
 Release your finger from the EDIT SHUTTLE at the starting point to resume the playback pause mode.
- 4 Press the RECORDER button on the recorder to light the indicator on. Search for the starting point to be recorded over using the EDIT SHUTTLE control.**
 To search for the point to be recorded over on the recording tape, turn the EDIT SHUTTLE to change to the picture on the recorder.
 Release your finger from the EDIT SHUTTLE at the starting point to resume the recording pause mode.
 The screen will display the picture on the player.
- 5 Press the SYNCHRO EDIT button.**
 Both the player and the recorder are released from the pause mode. Then playing and recording will start.

Note

Operate as described in steps 3 and 4 above to select the starting point for recording/playback. Press the SYNCHRO EDIT button again to start editing. Repeat the steps 3 to 5 to edit.

To stop the synchronized editing

Press the EDIT STANDBY button. The lamp lights off and both the player and the recorder enter the stop mode. The INPUT SELECT will change to TV and the received TV program will appear on the screen.

Dubbing the Audio Signals

You can additionally record music or narration on the PCM track of your tape, while the picture and sound pre-recorded on the standard track are unchanged.

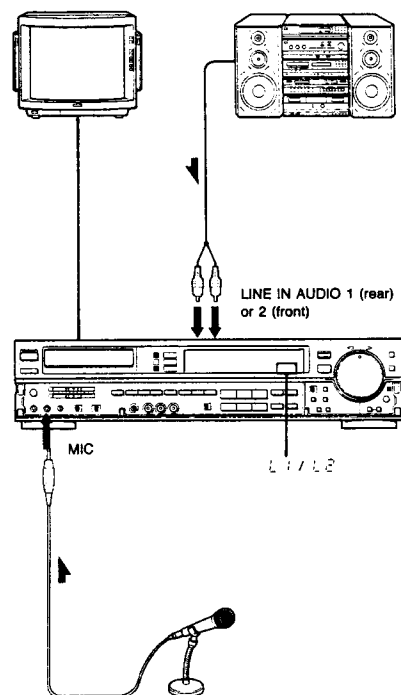
Connection on the Audio Source

Notes

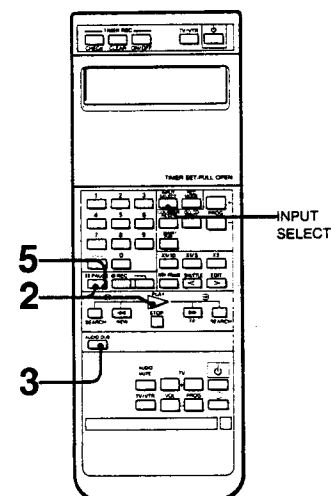
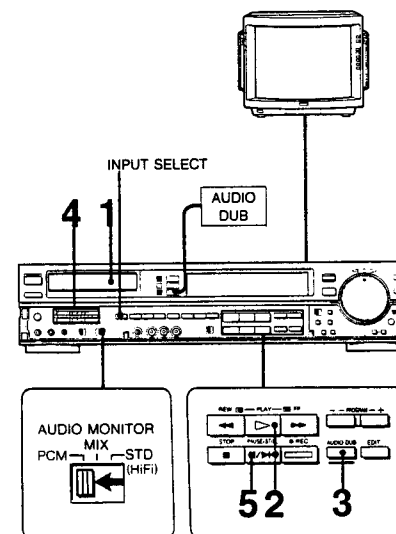
- Sound from the microphone is recorded in monaural.
- When the microphone is not in use, do not connect the microphone to the MIC jack or the sound will be mixed with the sound from the LINE IN AUDIO 1 or 2.
- Refer to each instruction manuals.

Tips for dubbing

- For fade-in operation, adjust the REC LEVEL control from the zero point to the normal position. For fade-out operation, turn it from the normal position to the zero point (LINE IN AUDIO only).
- The sound from the LINE IN AUDIO 1 jack on the rear panel or LINE IN AUDIO 2 jack on the front panel and the MIC jack can be mixed.
- Adjust the balance of the sound on the standard track and the sound dubbed on the PCM track with the REC LEVEL control.



▲ shows the direction of the signal flow.



Operation

Preparation

- Turn on the TV and select the channel for the VTR or select the input for the VTR.
- Set the AUDIO MONITOR selector to PCM.
- Press the INPUT SELECT button so that the L1 or L2 indication lights.
- Adjust the REC LEVEL control to an appropriate level watching the level meter.

Operation

- 1 Insert the cassette.
- 2 While viewing the picture, decide the point to start audio dubbing and press the **II/PAUSE/STILL** button.
- 3 Press the **AUDIO DUB** button.
- 4 Playback the audio sources and adjust the **REC LEVEL**.
- 5 Press the **II/PAUSE/STILL** button to release the pause mode, and at the same time start the audio source.

To stop audio dubbing momentarily
Press **II/PAUSE/STILL** or **II PAUSE** on the Commander.

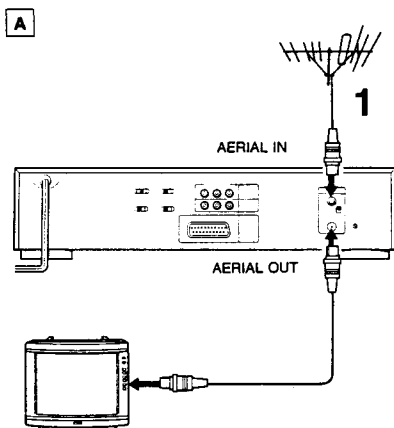
To stop audio dubbing
Press **STOP**.

To dub sounds from the TV
Press the **INPUT SELECT** button to select the "TUNER".
Other operations are the same as the above steps.

Notes

- The dubbed sound cannot be played back by a VTR without PCM recording or playback functions.
- The pre-recorded sound on the PCM track will be erased by dubbing.
- During dubbing, black bars will appear in the center and lower positions of the screen. But it has no effect on the recorded images. Picture may shake or colours may fade with certain TVs.

Connections

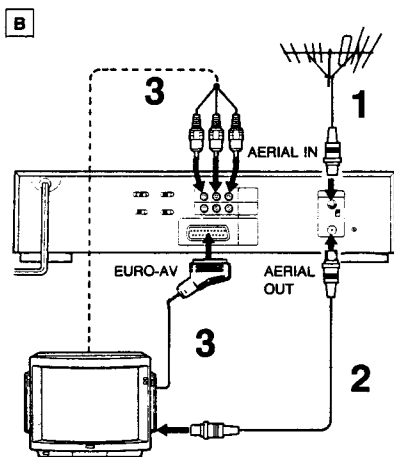


Notes

- Unplug each unit from the mains outlet before making the following connections.
- Make sure the connections are secure. A loose connection may cause a noisy picture.

A Connecting a TV without Video/Audio Input Jacks

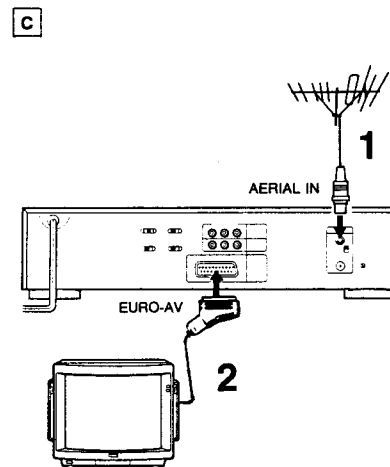
- 1 Remove the aerial cable from its socket on the TV. Then connect the aerial cable to AERIAL IN on the recorder.
- 2 Connect the aerial input of the TV to AERIAL OUT on the recorder, using the supplied cable.



B Connecting a TV Equipped with Video/Audio Input Jacks

- 1 Remove the aerial cable from its socket on the TV. Then connect the aerial cable to AERIAL IN on the recorder.
- 2 Connect the aerial input of the TV to AERIAL OUT on the recorder, using the supplied cable.
- 3 Connect EURO-AV of the recorder to the audio/video inputs (VIDEO/AUDIO IN, MULTI IN, or 21-pin SCART or PERI-TV) on the TV using an appropriate cable. This connection provides better-quality playback picture and sound.

How the recorder is set up to intercept all signals from the aerial on their way to the TV. The recorder then passes on the signals to the TV. This is why you can record a colour while it is being shown on the TV, or while the TV is showing another colour, or even when the TV is turned off.



C Connecting a Colour Monitor

- 1 Connect the aerial cable to AERIAL IN on the recorder.
- 2 Connect EURO-AV on the recorder to the audio/video inputs (VIDEO/AUDIO IN, MULTI IN, or 21-pin SCART or PERI-TV) on the monitor using an appropriate cable.
- 2' Connect to the AUDIO/VIDEO inputs on the monitor using 3 phono to 3 phono connecting cord.

Note

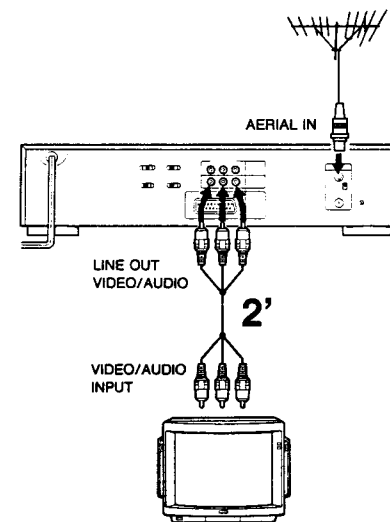
To use the Sony KX-series colour monitor, connect the recorder to the BNC-type VIDEO IN and phono-type AUDIO IN connectors on the monitor.

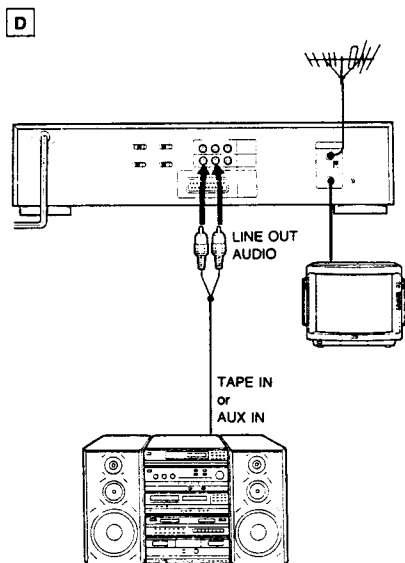
Notice on connection with a colour monitor

Connection between AERIAL OUT of the recorder and the colour monitor is not possible since the monitor is not equipped with a tuner. For this reason, you cannot watch a TV program while recording another program on the recorder.

Notice for customers in a strong signal area

The recorder has booster to assure stable TV reception. However, in areas near TV stations, where the TV signal is very strong, the picture may be affected by the booster. If this happens, set DX/LOCAL on the rear panel to LOCAL.





D Connecting an Audio System

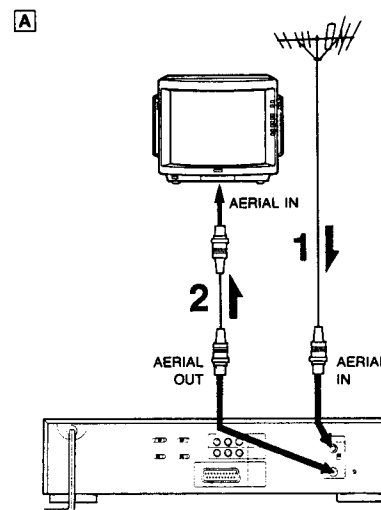
You can listen the sound of a cassette by connecting your stereo system.

Connect LINE OUT AUDIO of the VTR to the TAPE IN (or AUX IN) jack of a stereo amplifier.

Notes

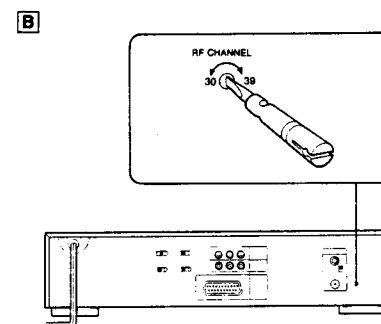
- If the VTR is installed near a tuner or a radio, noise may occur in the AM reception. In this case do one of these: keep the VTR away from the tuner or the radio, adjust the AM bar antenna for minimum noise, or connect an external AM antenna to the tuner.
- Note that PCM recorded cassette reproduce sounds over a wide dynamic range. Adjust the volume carefully to protect your speaker from damage.
- Before connecting or disconnecting the power cord of the VTR, be sure to turn the amplifier off.

Adjusting the TV (To connect this VTR to a TV without video/audio inputs)



A Making connections

- 1 Unplug the aerial's lead from the TV and plug it into AERIAL IN on the VTR.
- 2 Plug the supplied coaxial cable into the TV and the AERIAL OUT on the VTR.



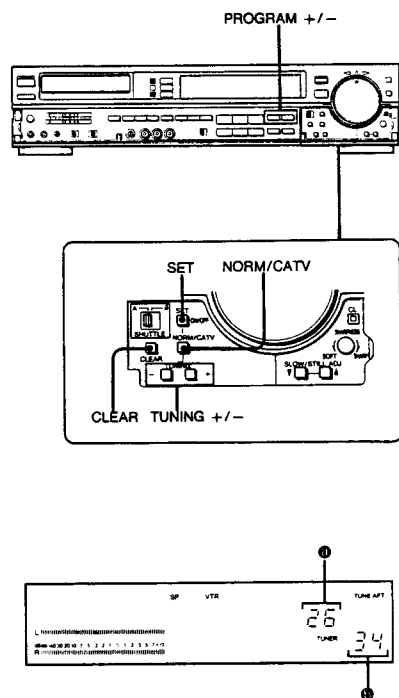
B Adjusting the RF channel

- 1 Turn the TV on and select an empty program.
- 2 Turn the VTR on and playback a prerecorded tape. (See page 14)
- 3 Adjust the TV so the tape that is played back appears clearly on the screen.
- 4 If the playback picture is not free of disturbance, use the supplied screwdriver to adjust the RF CHANNEL to a channel which is not active in your area.

Note

Now your TV is tuned to receive the VTR's playback picture. Whenever you playback a tape, select the program you chose in step 1. If you are not sure how to tune your TV, refer to the TV's instruction manual or consult your dealer.

Presetting TV Channels



Selecting TV Channels

This VTR is capable of receiving the following channels:
VHF channels E2 – E4, E5 – E12
UHF channels E21 – E69
Cable TV channels S01 – S03, S1 – S20 and S21 – S41

- The receivable channels are governed by the TV broadcasting system in your area.
- Up to 60 channels can be allocated to any desired program position.

- 1 Press SET button.
- 2 Select the desired program position by pressing PROGRAM +/-.
- 3 Select the normal programs or CATV programs with the NORMAL/CATV button. CATV will be displayed when CATV is received into the TV set.
- 4 Press TUNING +/- button and select the channel number
- 5 To allocate a channel to the next program position, repeat steps 2 to 4.
- 6 Press SET button again.

To Allocate the Channels Directly

In step 4, enter the desired program numbers using the program position number and +/- buttons on the Commander.

To enter one's digits, press 0 and then the desired number. To enter two digit numbers, press +/-, the ten's digit number, and lastly the one's digit number.

Channel scanning on your VTR

- When TUNING + is pressed in steps 4 channels are scanned in the following order. When TUNING – is pressed the scanning order is reversed.
VHF (E2-E12) → UHF (E21-E69) → CATV (S1-S20) → HYPER BAND (S21-S41) → CATV (S01-S05).
- In Italy, channels 13 to 20 correspond to channels A to H.

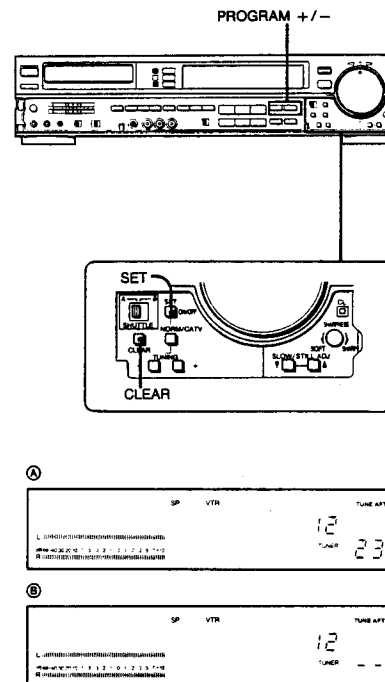
- ② Program position
- ③ Channel number

Erasing Unwanted Program Positions

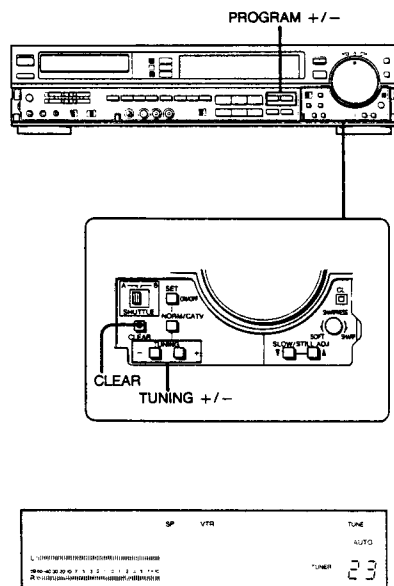
The VTR can be preset so that only the desired program positions will appear when you press PROGRAM +/-.

- 1 Press SET button.
- 2 Press PROGRAM +/- for displaying the unused program position.
- 3 Press CLEAR.
- 4 Repeat steps 2 and 3 to erase other program positions.
- 5 Press SET.

To enter the erased program positions again Follow the procedure in "Selecting TV Channels."



- Ⓐ When SET button is pressed
- Ⓑ When CLEAR button is pressed



Manually Fine-tuning a Weak station

Normally set to AFT ON, the VTR automatically tunes the received channels. However, when the program received on the VTR is distorted due to signal interference, manual fine tuning may solve the problem.

- 1 Select the distorted program position by pressing PROGRAM +/-.
- 2 Press the TUNING +/- buttons simultaneously. The AFT indicator disappears. To resume the AFT ON mode, press the CLEAR button.
- 3 Press the TUNING buttons + or - for searching the clear displaying point.
- 4 Press the TUNING +/- buttons simultaneously for setting.

Precautions

On safety

- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker and so on.
- Do not place any heavy object on the unit. Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store a video cassette after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzene which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as shown the illustration on the carton.

On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

On moisture condensation

- **Main Unit**
Do not operate the unit right after having transported it from a cold location to a warm location or in a room where the temperature rises suddenly, because moisture may condense in the operating section of the unit. Wait for about an hour before turning the power on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the tape may be damaged. Therefore remove the tape immediately when there is a possibility of moisture condensation and no picture is obtained. To evaporate the moisture rapidly, leave the player turned on without a tape loaded.
- **Cassette**
When a cassette tape is carried from a cold place to a warm place, the cassette tape may become wet with dew created by moisture condensation. When there is any possibility of moisture condensation, eject the cassette tape and leave it outside of the compartment for about one hour.

If you have any questions about this unit, contact your Sony dealer.

Notes on Video Heads

Video heads cleaning

VTRs used for a long time may play back the rough picture or do not display the picture. The possible cause may be the contamination of the video heads. In such a case, clean the video heads at first. Use the video head cleaning tape V8-25CLH (not supplied) or ask the Sony service personnel to clean the video heads.

If the picture is not clear in using a cassette tape of another type, sometimes it is effective to use the video head cleaning tape. Use it after reading the instruction manual carefully.

Video heads wear by long time using

If the VTR displays unclear picture after cleaning of the video heads, the replacement of the video heads is necessary. Consult the dealer or the Sony representative.

Check the video heads after 1,000 hours use.

VTR is a high precision machine. It must record on or play back from magnetic tapes on which the image signals from the colour TV or the video camera recorder are recorded.

The video heads or mechanical parts to transport the tape are contaminated or worn in a long time use. It is recommended to have the VTR checked (cleaning, oiling and replacing worn parts) about 1,000 hours interval.

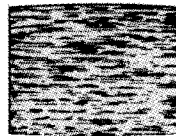
Use the video cleaning tape if you find the symptom as follows:

Normal picture



Symptoms caused by contaminated video heads

- Rough picture
- Unclear picture
- No picture



Initial

terminal

Above symptom may occur in playback.
Most possible cause of this may be the contamination of video heads.
Purchase the video cleaning tape V8-25CLH at your dealer or a Sony shop.

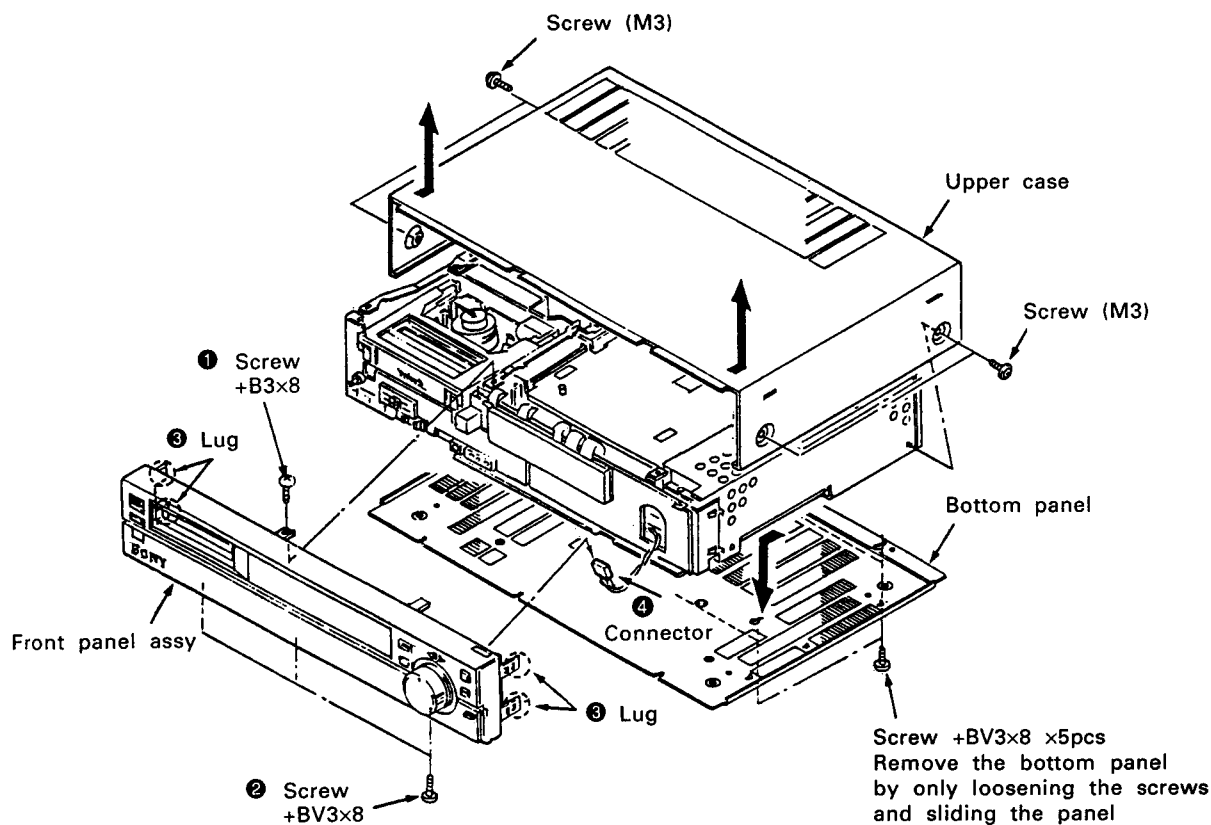
Troubleshooting

The following checks will assist you in correcting most problems which you may encounter with your VTR. Should any problem persist after you have made these checks, consult your nearest Sony service facility. Before going through the check list below, first refer back to the connection and operation procedures.

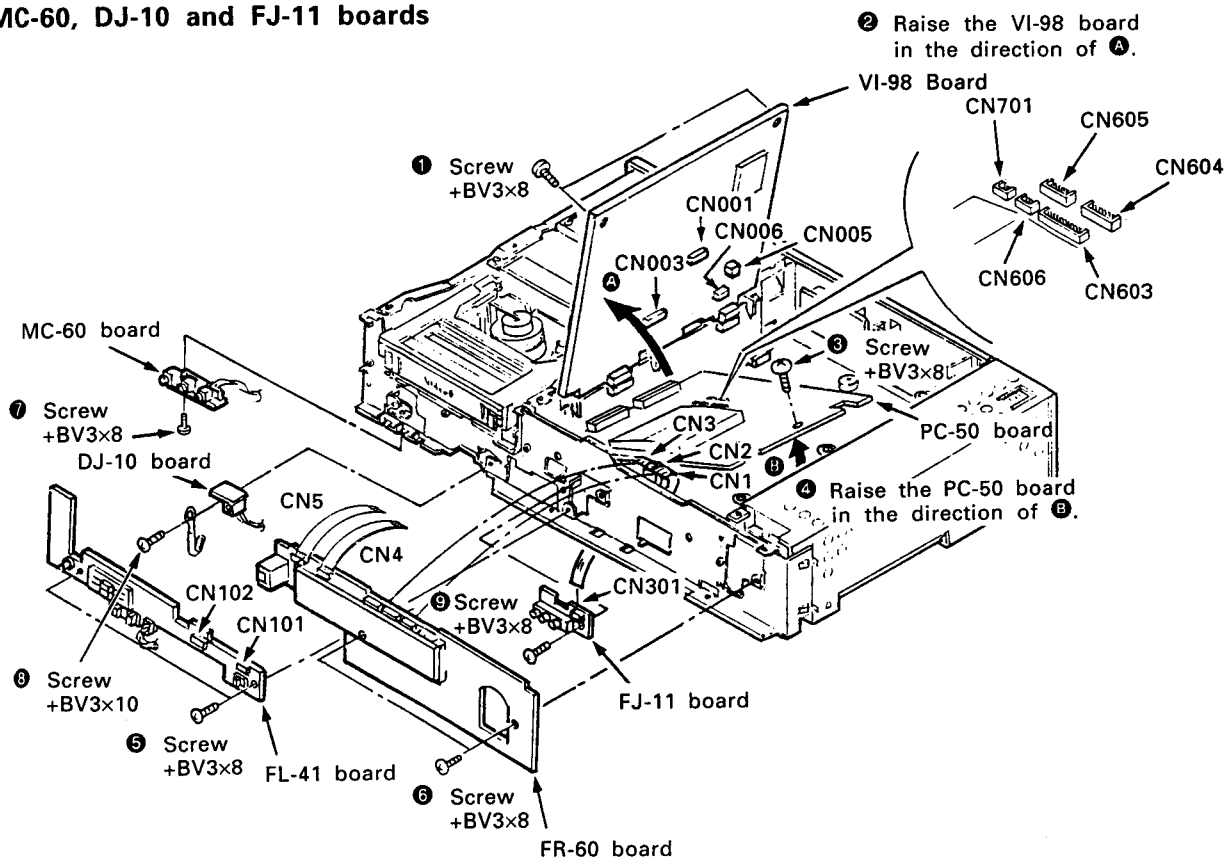
Symptom	Possible causes and corrections
The ON/STANDBY switch does not function.	<ul style="list-style-type: none"> The power cord is disconnected. The recorder is in the timer standby mode. (Press TIMER REC so that the TIMER REC indication goes off.)
The clock blinks showing "Su 0:00".	There has been a power interruption. Reset the clock time and timer settings. ⑦
Picture being recorded cannot be monitored on the TV screen.	<ul style="list-style-type: none"> Press TV/VTR so that the VTR indication is displayed in the display window. The channel for the VTR is not correctly tuned on the TV.
TV program is not clearly displayed on the TV screen or no picture is displayed on the screen.	<ul style="list-style-type: none"> The VTR indication is not displayed. Press the TV/VTR button. ④ The channel for the VTR is not correctly tuned or the video input is not selected on the TV. The CLOUR SYS selector is not set correctly.
When the ●REC buttons are pressed, the cassette is ejected.	The tab on the cassette is slid out (red). ⑤
Recording cannot be done correctly.	<ul style="list-style-type: none"> The input is not selected correctly. ① The cassette is not inserted. The connecting cord is not connected to the LINE IN VIDEO/AUDIO jacks. ⑩
Playback picture is not clearly displayed on the TV screen.	<ul style="list-style-type: none"> The channel for the VTR is not correctly tuned or the video input is not selected on the TV. The video heads may be contaminated. ③ Clean the heads using the Sony video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. Adjust the SHARPNESS control. Hi8 recorded tape is played back.
Stereo programs are heard in monaural	<ul style="list-style-type: none"> Set the AUTO STEREO switch ON. ① Set the AUDIO MONITOR selector to PCM. ⑬ No sound is recorded on the PCM track. The tape is audio dubbed.
The picture shakes in the picture search mode.	Adjust the vertical hold control on the TV.
Timer setting cannot be made.	The clock is not set. ⑦
The cassette is ejected when the TIMER REC button is pressed.	The tab on the cassette is slid out.
A timer recording cannot be made.	<ul style="list-style-type: none"> There has been a power interruption. ⑦ The TIMER REC button has not been pressed. ② The cassette is not long enough to record. The clock is not set correctly. ⑦
The Remote Commander cannot be operated.	<ul style="list-style-type: none"> The batteries are exhausted. ⑤ Set the COMMAND MODE, VTR1, VTR2 or VTR3, identically on both the unit and the Remote Commander. ⑥
Sounds from the LINE IN AUDIO jacks cannot be heard.	The REC LEVEL control is at lower level position. ⑫
The VTR does not operate to any button.	<ul style="list-style-type: none"> The built-in microprocessor seems to work wrong. ⑨ Pressing the CL (reset) button with a pointed object, such as a ball point pen, may cause to resume. (All of the information such as the clock or the preset programs stored will be cleared.)

SECTION 3 DISASSEMBLY

3-1. UPPER CASE, BOTTOM and FRONT PANELS



3-2-1. Removal of VI-98, PC-50, FL-41, FR-60, MC-60, DJ-10 and FJ-11 boards

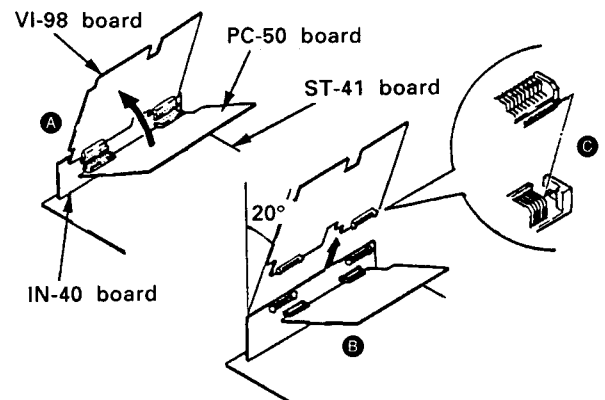


3-2-2. Removal of board connected with BOARD TO BOARD connector

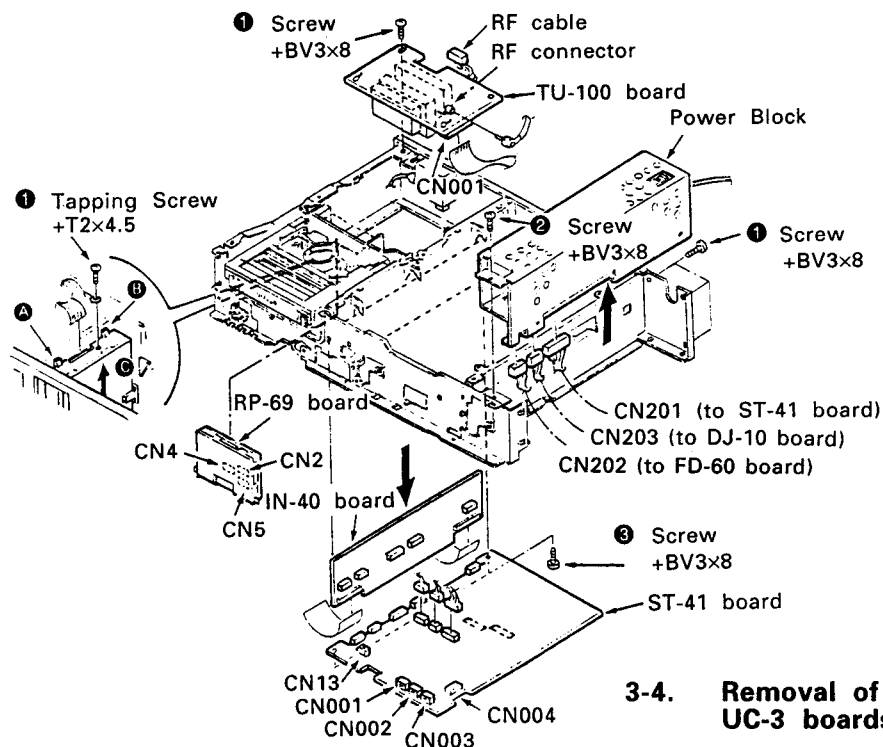
Example: VI-98 board is removed from IN-40 board.

- 1) Raise the VI-98 board as shown in **A**.
- 2) Draw the VI-98 board in the direction of 20° from the IN-40 board as shown in **B**.
- 3) Remove another PC-50 board in the same way.
- 4) To mount a board, engage the connector into the socket as shown in **C** and insert.

Note: If forcefully pulled, the connector or pattern may be damaged, so be careful.

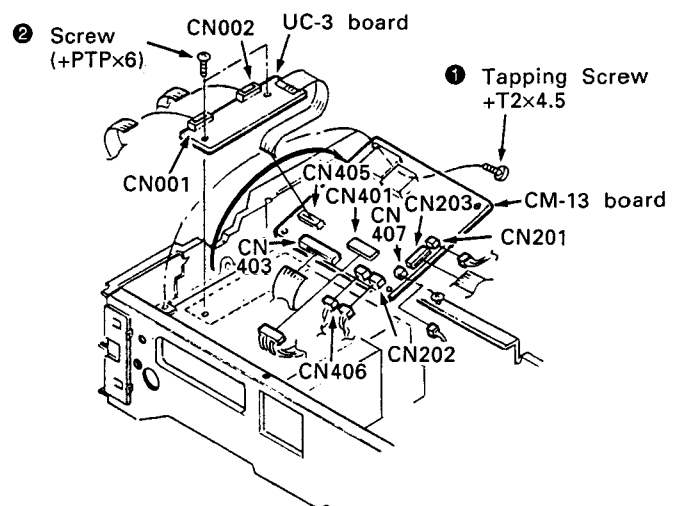
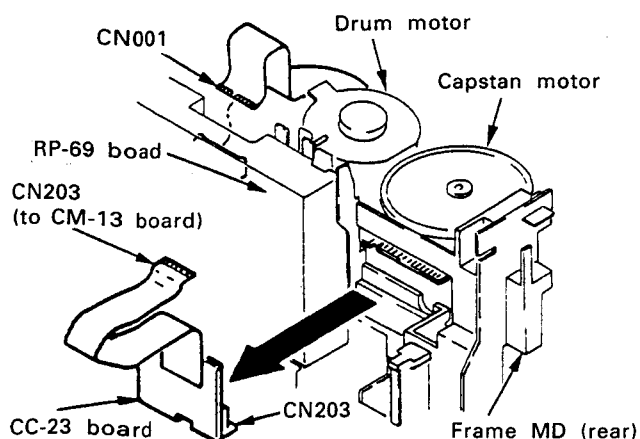


3-3-1. Removal of Power block and ST-41, IN-40, RP-69, and TU-100 boards

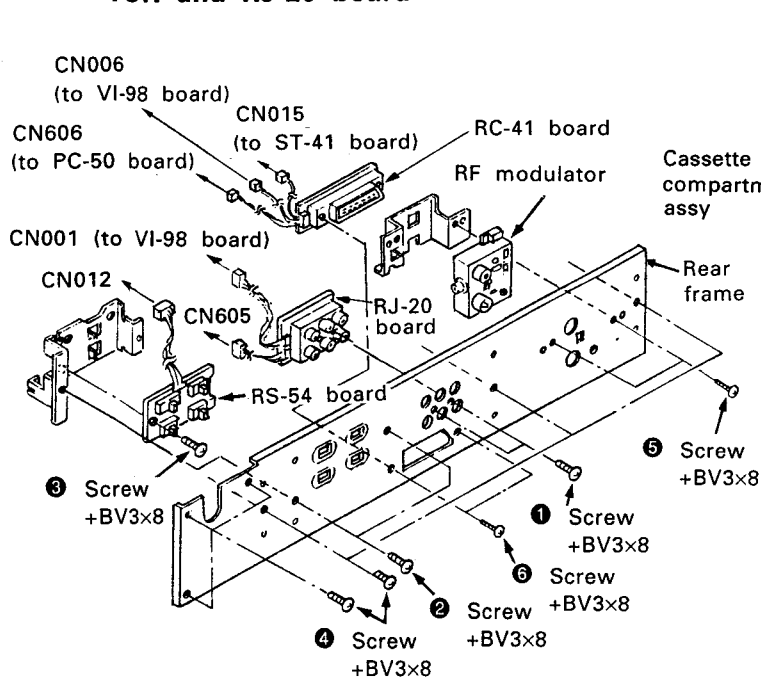


3-4. Removal of CM-13 and UC-3 boards

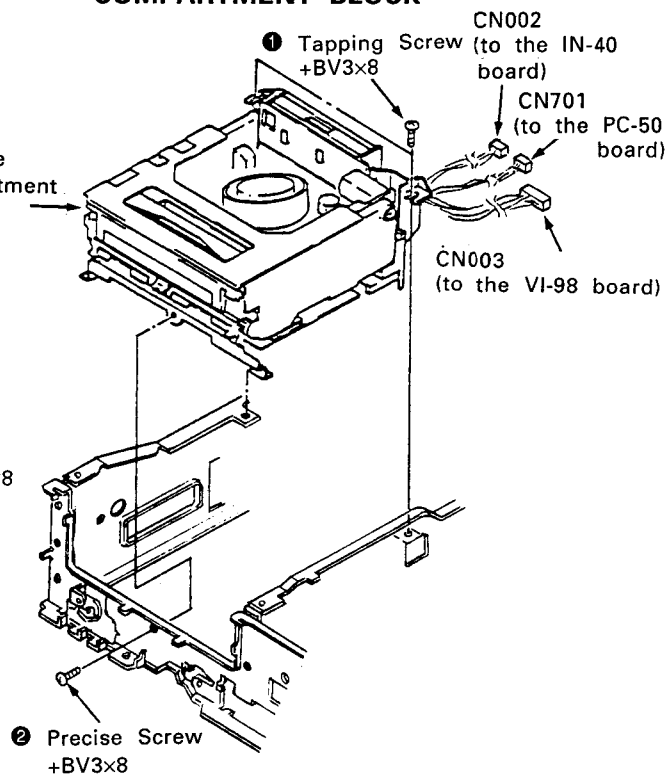
3-3-2. Removal of CC-23 board



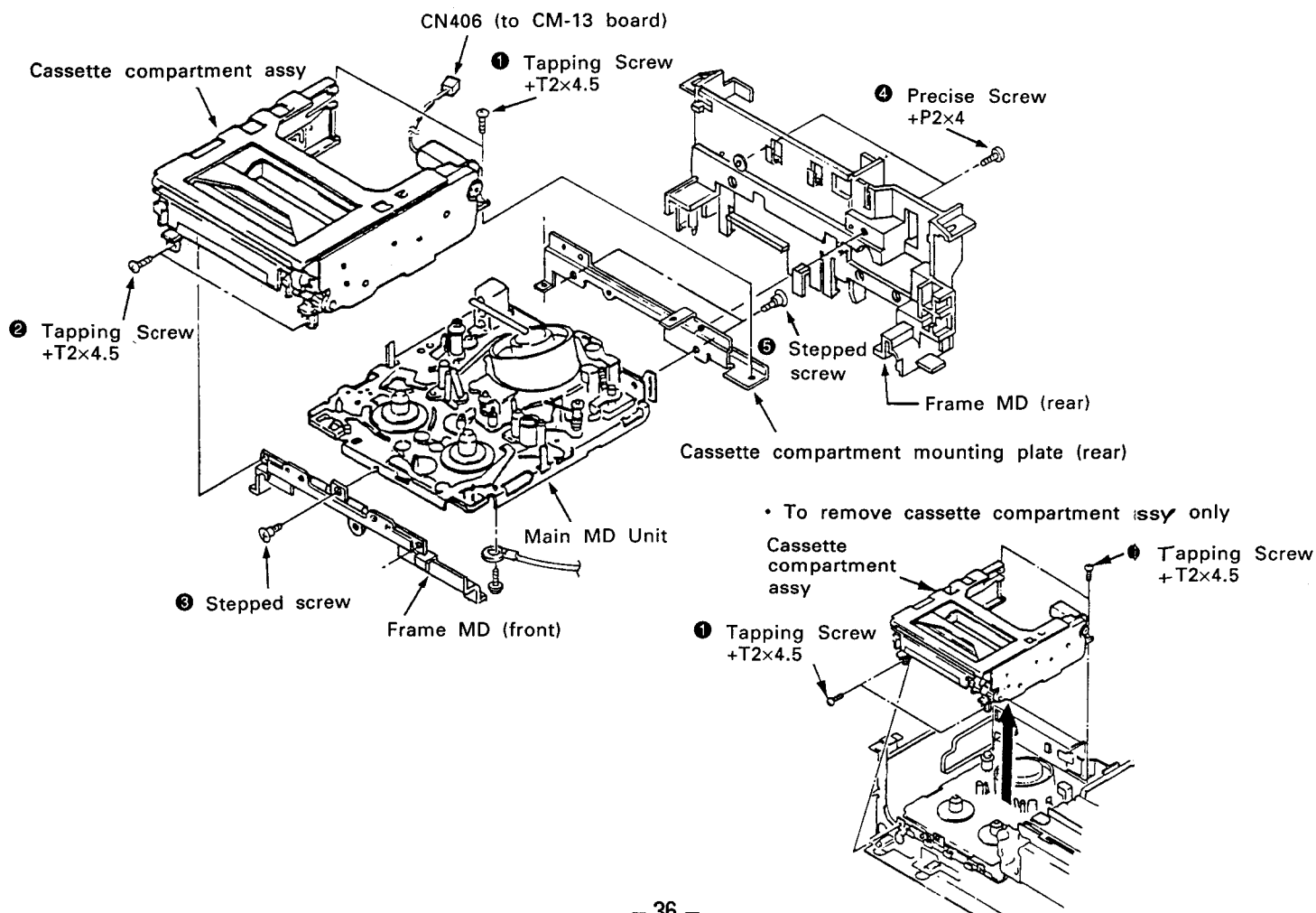
3-5. Removal of REAR FRAME, RF MODULATOR and RJ-20 board



3-6. Removal of MD, and CASSETTE COMPARTMENT BLOCK



3-7. Removal of MAIN MD UNIT

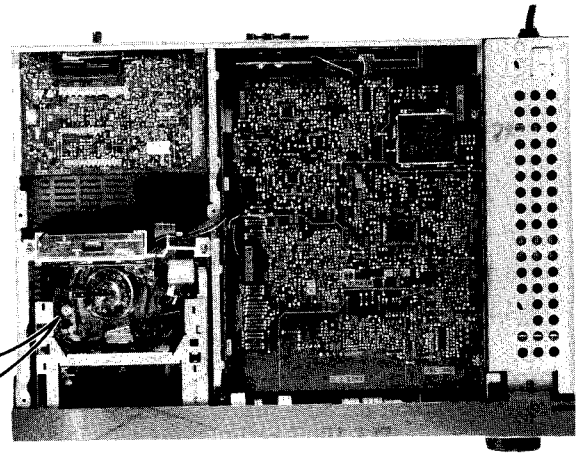
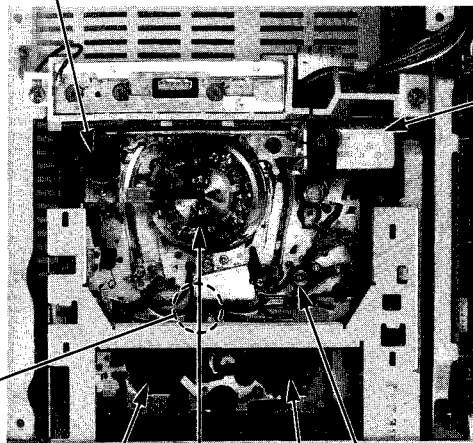


3-8. INTERNAL VIEW OF MECHANICAL DECK UNIT AND NAME OF EACH PART

- Upper side -

Loading motor assy
A-7040-160-A

FL motor assy (M901)
X-3731-108-1



Tape top/
tape end LED
(GL-452S)
8-719-940-81

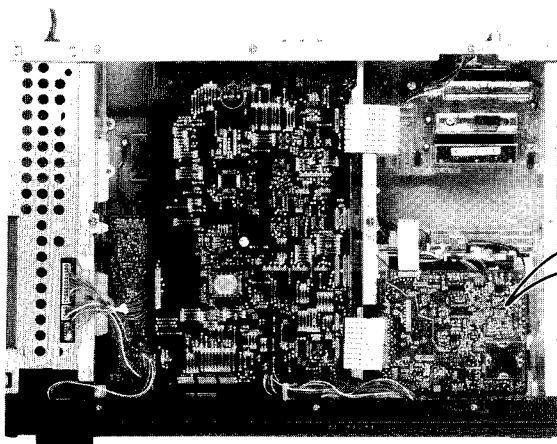
PINCH ARM BLOCK Ass'y
A-7040-219-A

S reel Table assy
X-3728-851-1

T reel Table assy
X-3728-855-1

Drum assy (DGU-72A-R)	A-7048-424-A
Revolution upper drum assy (DGR-72-R)	A-7049-355-A

- Lower side -



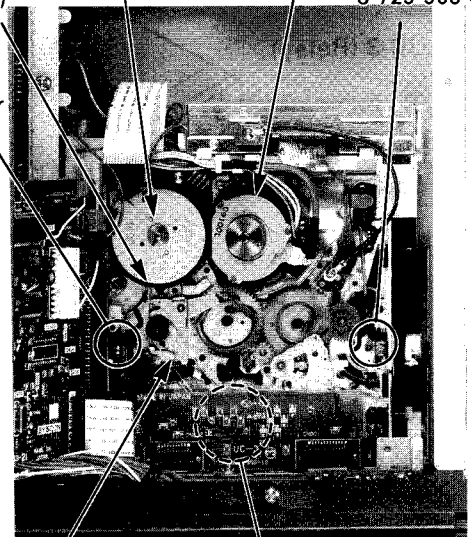
Capstan motor (M902)
8-835-331-01

Drum motor

Tape top sensor
(EE-TP109)
8-729-906-48

Timing belt (S)
3-728-866-11

Tape top sensor
(EE-TP109)
8-729-906-48

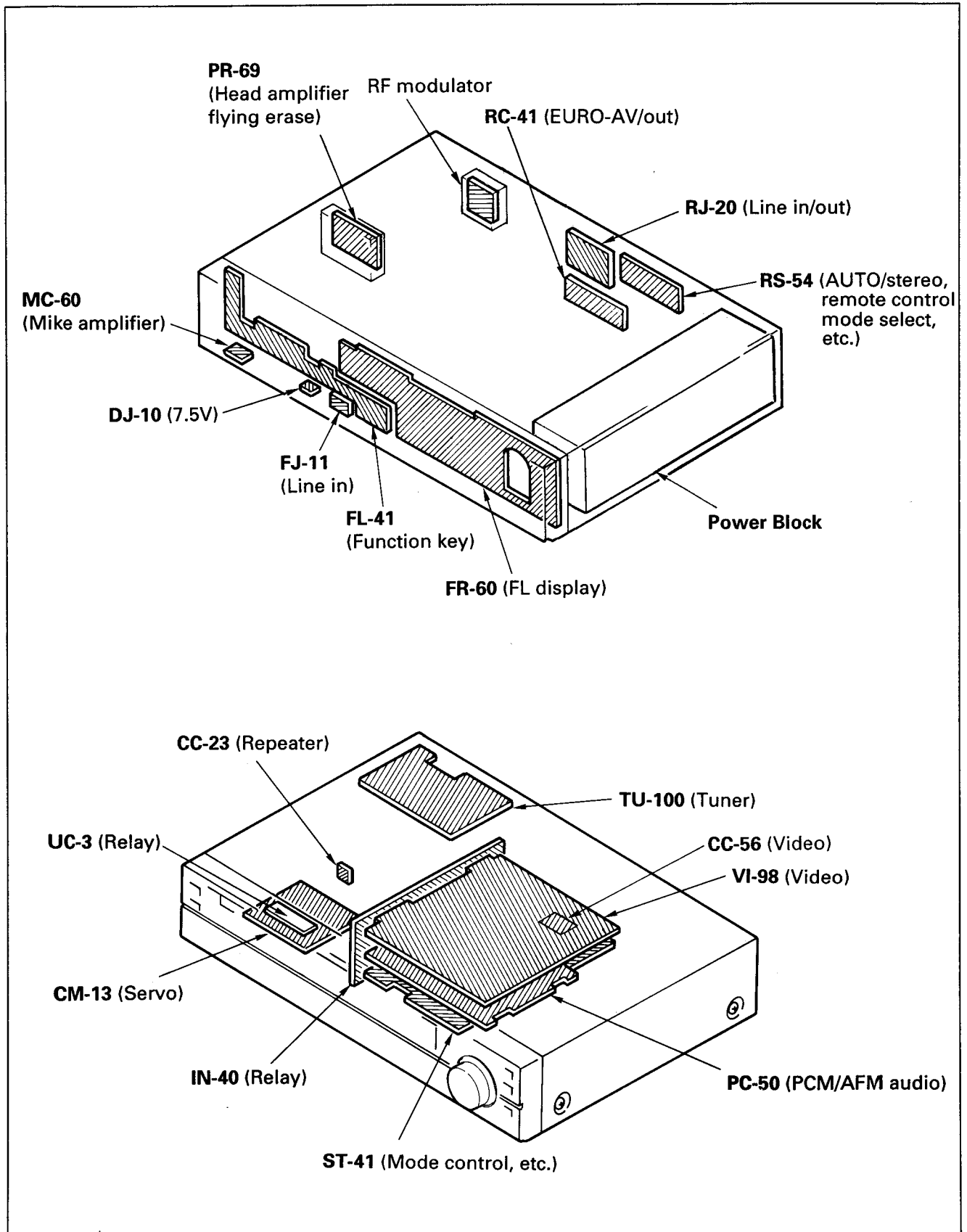


Timing belt (L)
3-741-197-01

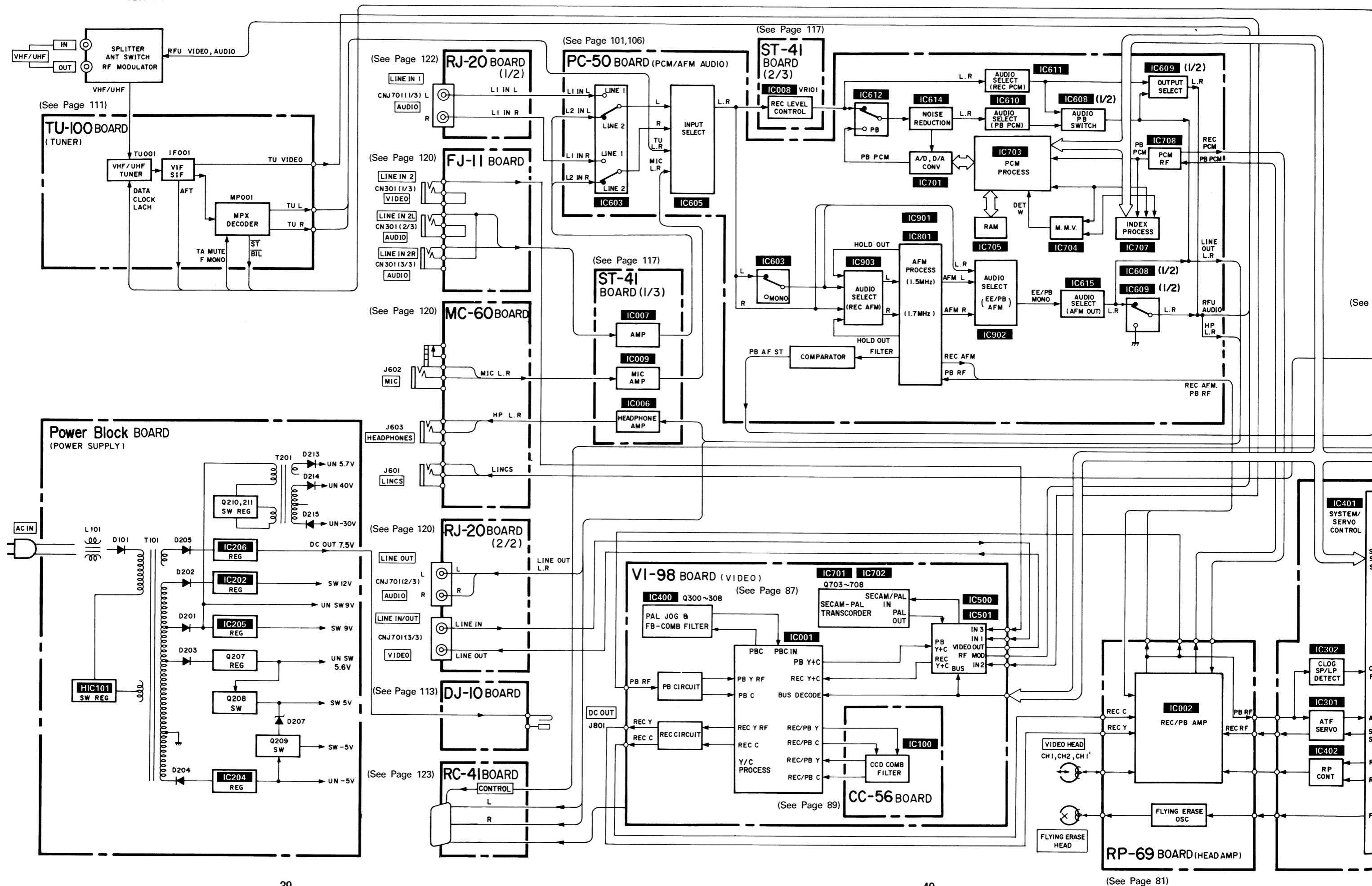
RK gear assy
X-3728-866-1

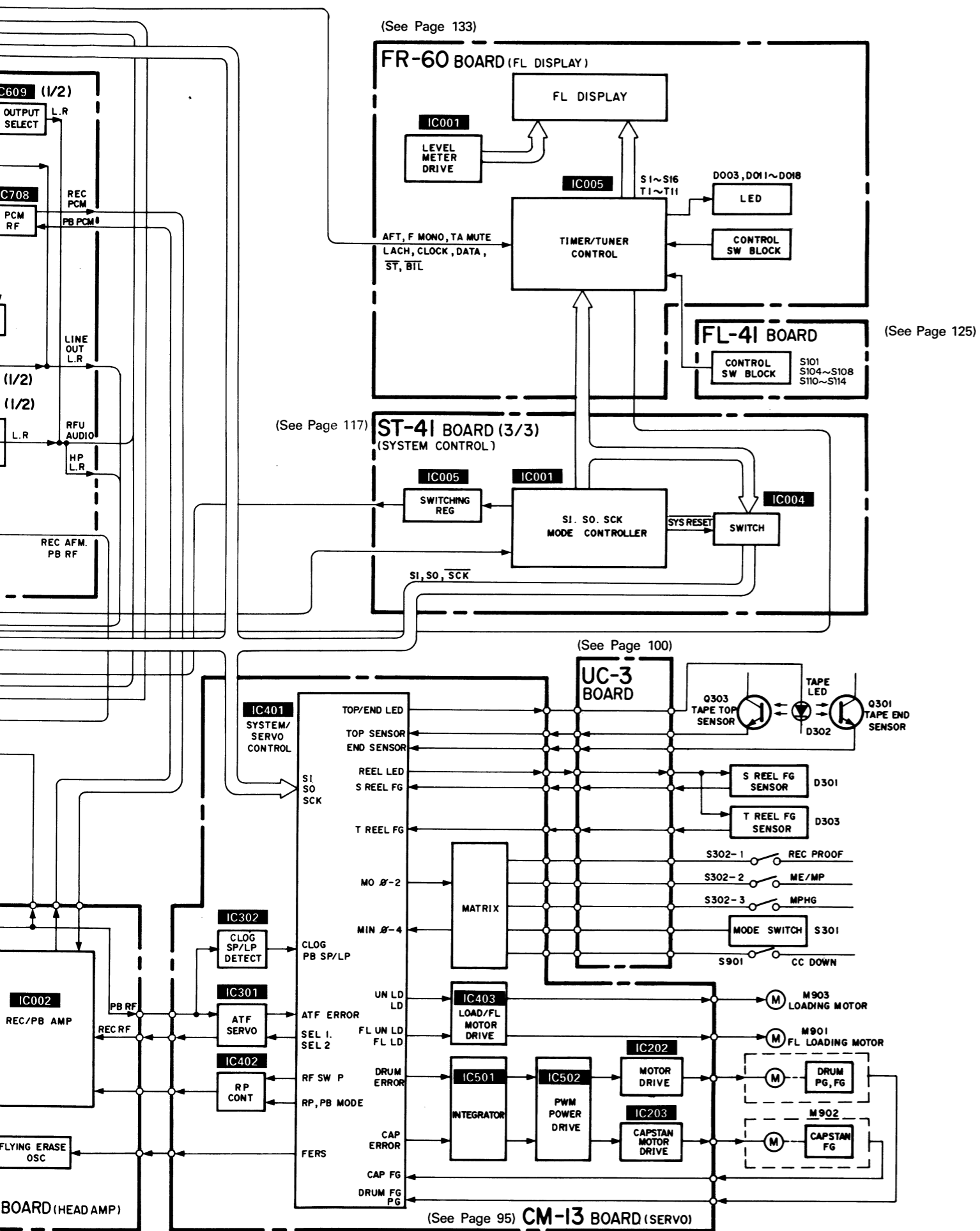
SECTION 4 DIAGRAMS

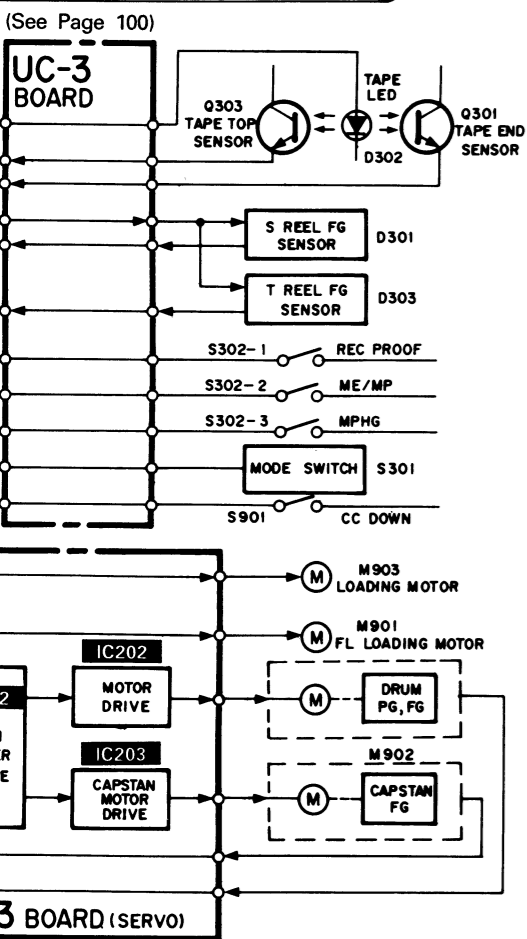
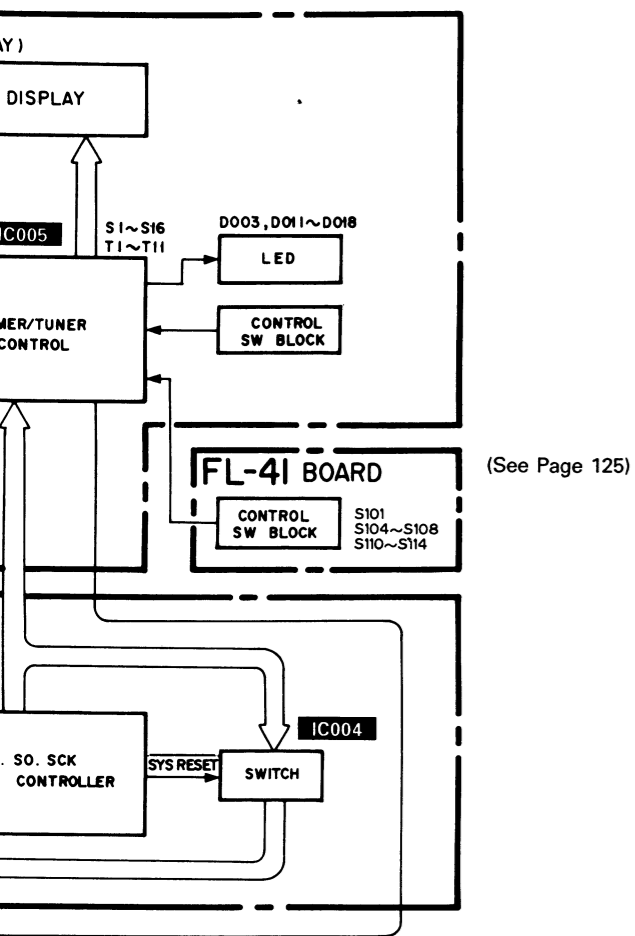
4-1. CIRCUIT BOARDS LOCATION



4-2. OVERALL BLOCK DIAGRAM

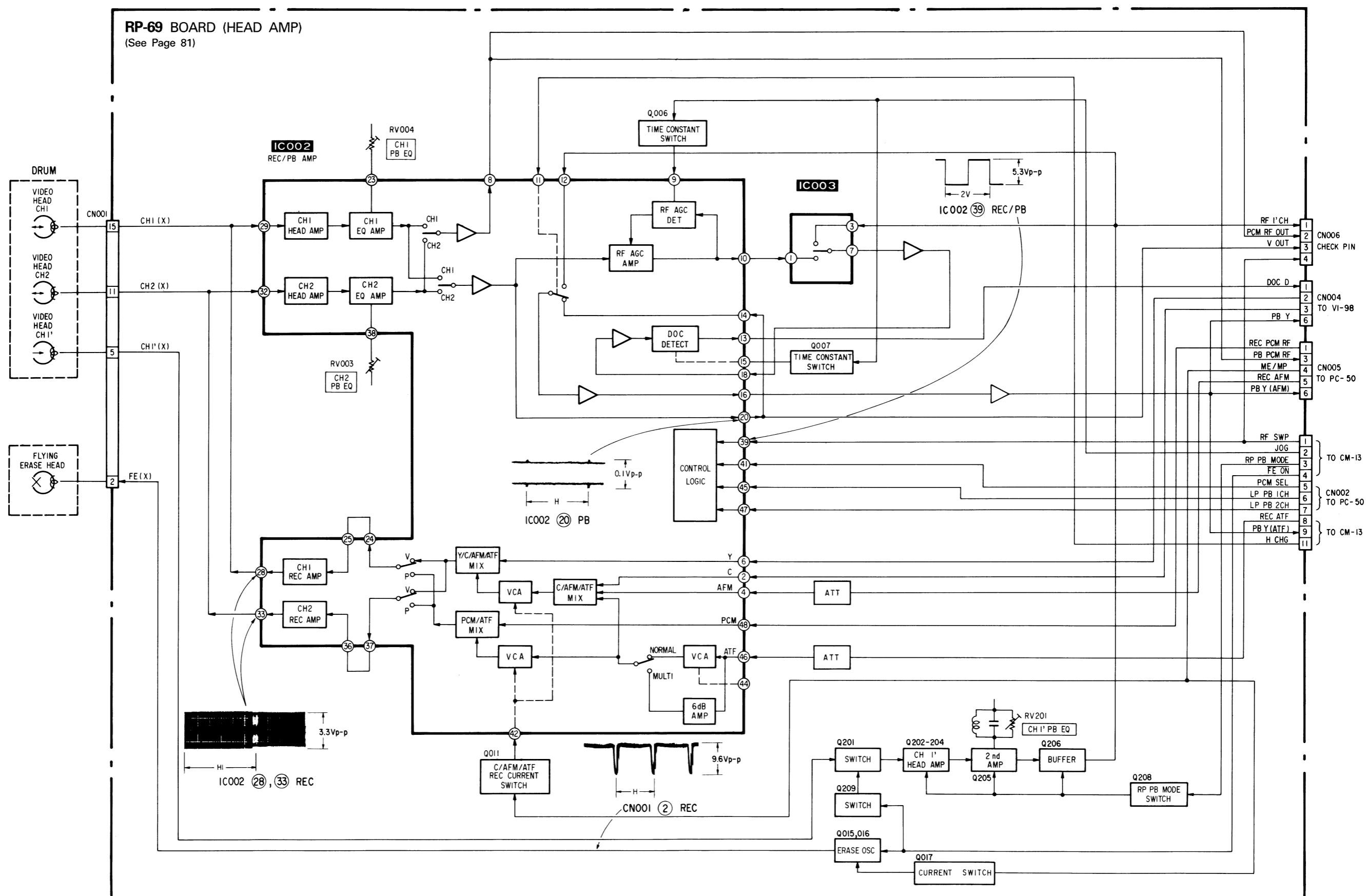




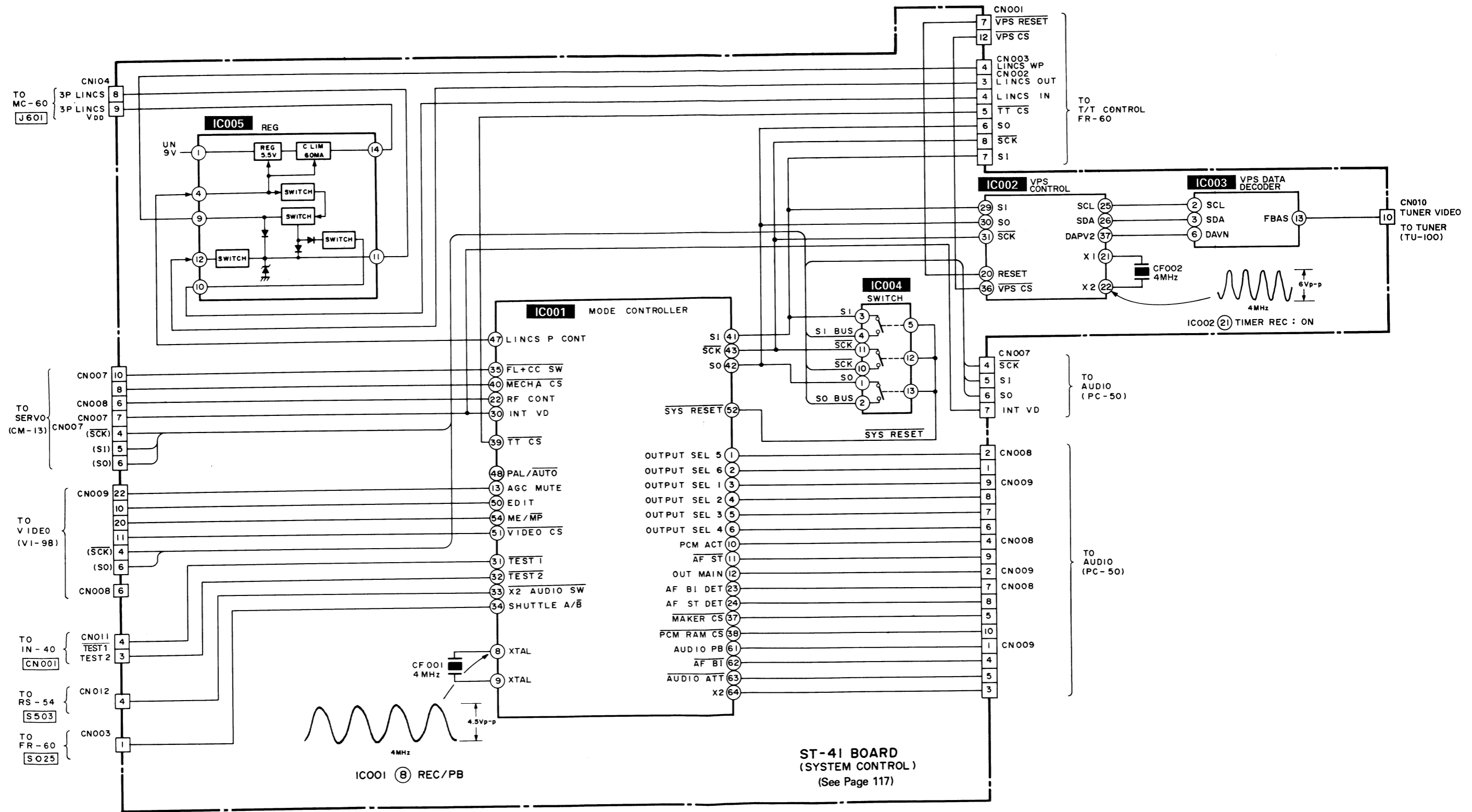




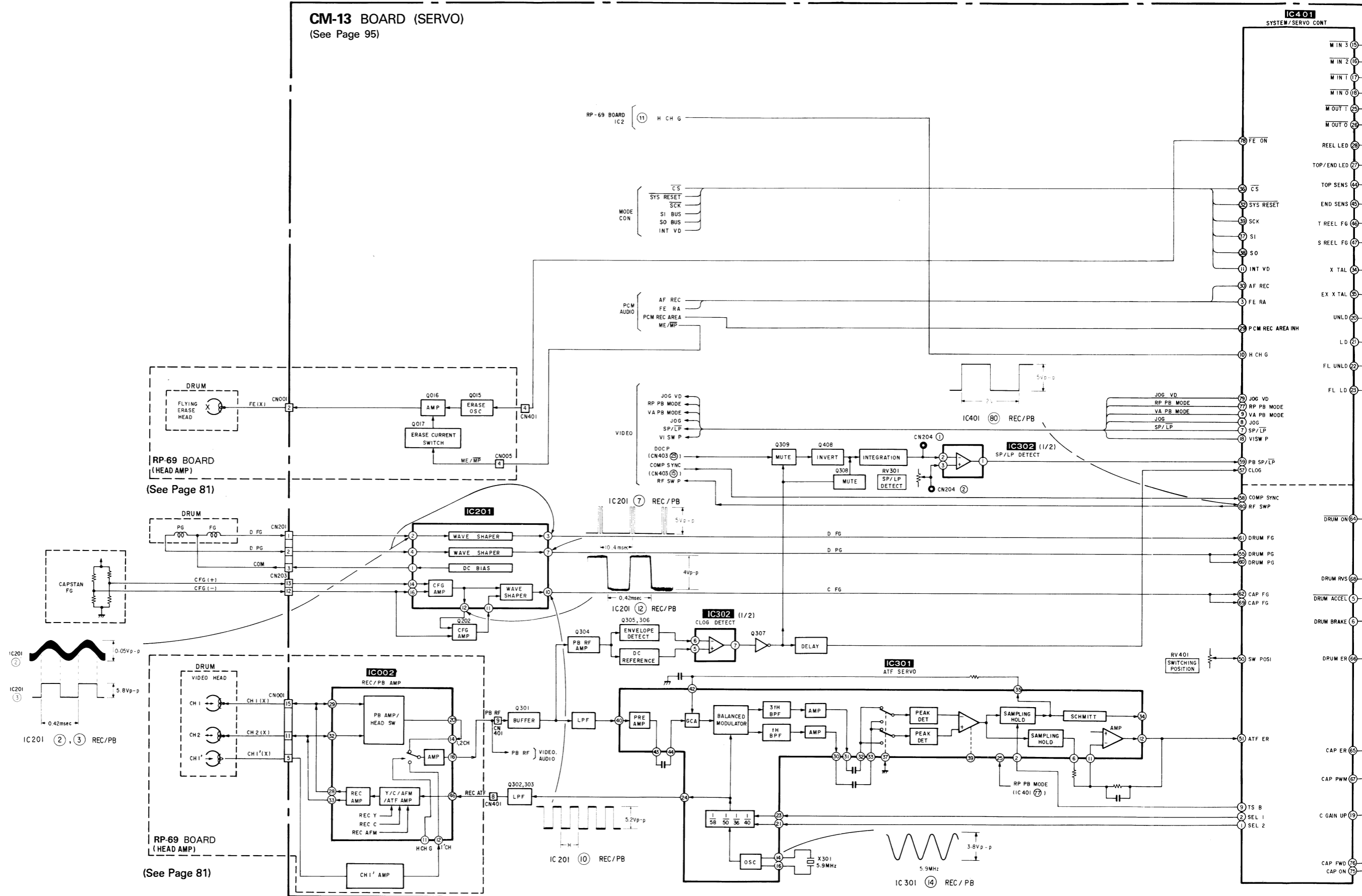
4-4. HEAD AMP BLOCK DIAGRAM

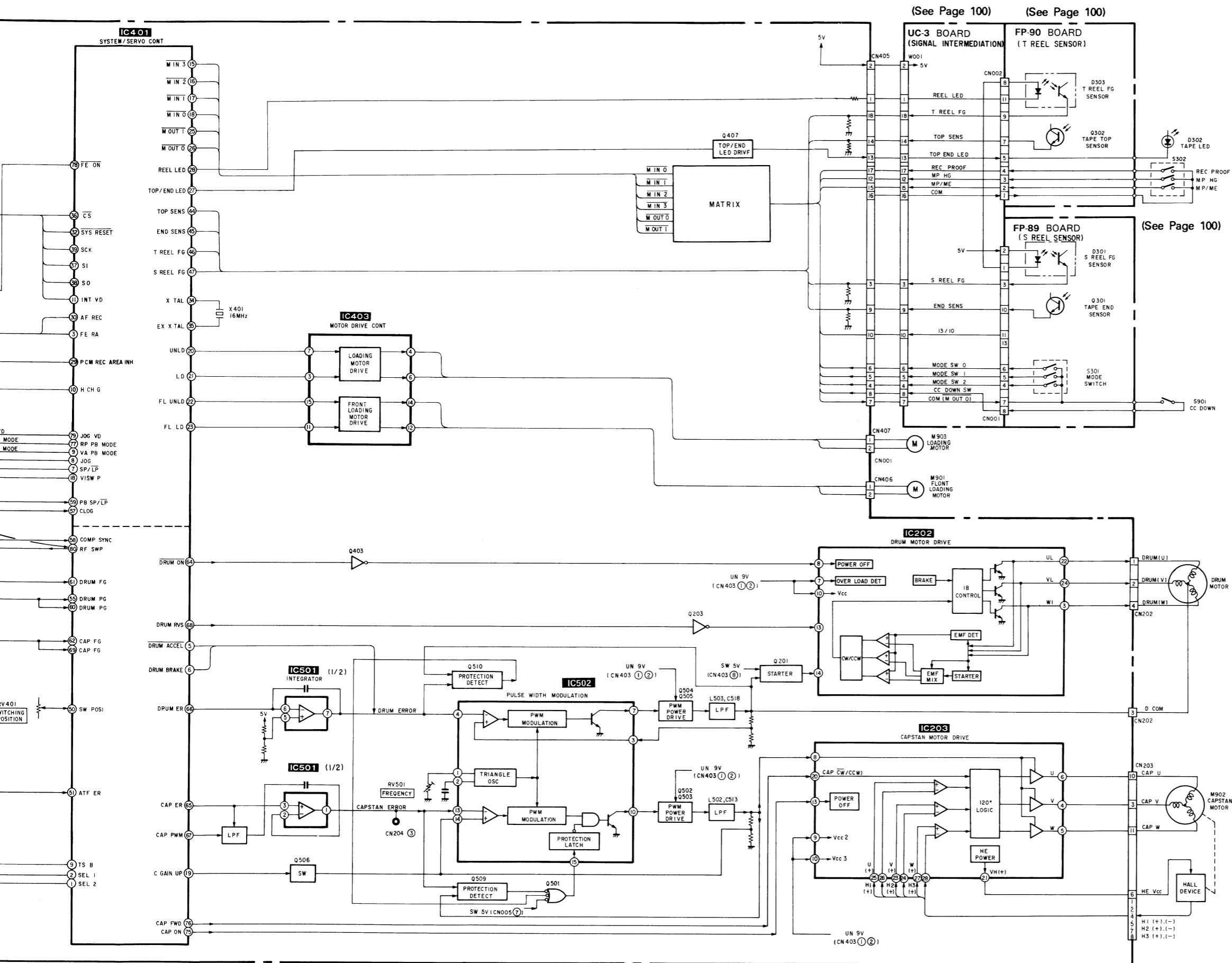


4-5. SYSTEM CONTROL BLOCK DIAGRAM



4-6. SERVO BLOCK DIAGRAM





4-7. SYSTEM CONTROL - VIDEO, AUDIO BLOCK INTERFACE (IC401 ON CM-13 BOARD)

SIGNAL	I/O	Pin No.	EJECTED	THREAD- ING	UN THREAD- ING	STOP	FF	REW	CUE	REVIEW	PB	PB • PAUSE	REC	REC • PAUSE	X2	SLOW	AF REC	AF RECP.
SEL 2	O	IC401 ① pin	H	H	H	H	H	H	* 3	* 3	* 2	H	* 1	L	* 17	* 18	* 19	H
SEL 1	O	IC401 ② pin	H	H	H	H	H	H	* 3	* 3	* 2	H	* 1	H	* 17	* 18	* 19	H
DRUM ON	O	IC401 ④ pin	H	L	L	H	L	L	K	L	L	L	L	L	L	L	L	L
INT VD	O	IC401 ⑪ pin	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4
SW POSI	I	IC401 ⑩ pin	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5	* 5
ATF ERROR	I	IC401 ⑤① pin	* 6	* 6	* 6	* 6	* 7	* 7	* 7	* 7	* 7	* 7	* 6	* 6	* 7	* 7	* 7	* 7
DRUM PG	I	IC401 ⑤⑤, ⑥① pin	L	* 8	* 8	L	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8
DRUM FG	I	IC401 ⑥① pin	H	* 9	* 9	H	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9
CAP FG	I	IC401 ⑥②, ⑥③ pin	H/L	PULSE	PULSE	H/L	* 10	* 10	* 10	* 10	* 10	H/L	* 10	H/L	* 10	H/L	* 10	H/L
CAP ERROR	O	IC401 ⑥⑤ pin	* 11	* 11	* 11	L	* 11	* 11	* 11	* 11	* 11	L	* 11	L	* 11	* 11	* 11	L
DRUM ERROR	O	IC401 ⑥⑥ pin	L	* 12	* 12	L	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12
CAP PWM	O	IC401 ⑥⑦ pin	L	* 13	* 13	L	13	* 13	* 13	* 13	* 13	L	* 13	L	* 13	* 13	* 13	L
DRUM RVS	O	IC401 ⑥⑧ pin	"L"	* 14	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CAP ON	O	IC401 ⑦⑤ pin	L	H	H	L	H	H	H	H	H	L	H	L	H	H/L	H	L
CAP FWD	O	IC401 ⑦⑥ pin	L	L	H	L	H	L	H	L	H	H	H	L	H	H/L	H	L
RF CONT	O	IC401 ⑧① pin	* 16	* 16	* 16	"H" or "L"	* 16	* 16	* 16	* 16	* 16	* 16	* 16	* 16	* 16	* 16	* 16	* 16

- * 1. See Timing Chart 1.

* 2. See Timing Chart 2.

* 3. See Timing Chart 3.

* 4. 1V period "H" pulse

* 5. DC voltage as set by RV102 (switching position adjustment)
- * 6. About 2.5 Vdc constant

* 7. ATF error voltage

* 8. 2V period "H" pulse

* 9. 1.4 msec period pulse

* 10. Pulse in the frequency proportional to tape speed
- * 11. Pulse output at the rise of capstan

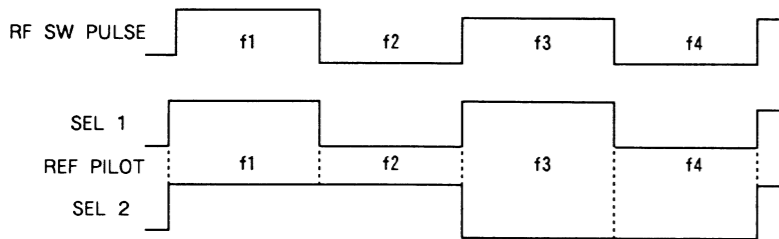
* 12. PWM signal of 6 msec period for 3 outputs of "H", "L" and "HIZ" (2.5Vdc)

* 13. PWM signal of 64 μ sec period

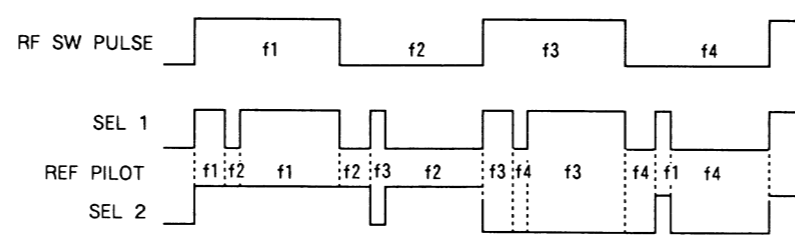
* 14. Becomes "H" instantaneously upon THREADING of Full Top tape (virgin tape)

* 16. 50% duty pulse of 2V period

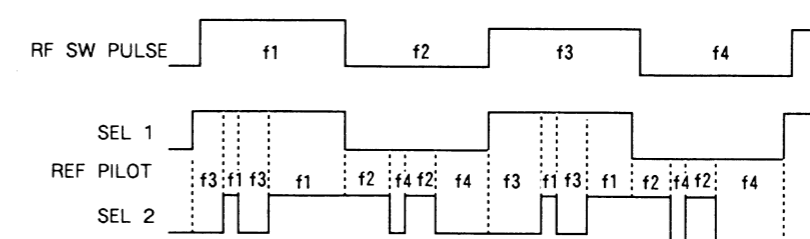
Timing Chart 1 (REC)



Timing Chart 2 (PB)



Timing Chart 3 (CUE/REVIEW)



4-8. SYSTEM CONTROL - VIDEO, AUDIO BLOCK INTERFACE (IC401 ON CM-13 BOARD)

SIGNAL
LP PB 1 CH
LP PB 2 CH
JOG
SP/LP
SYS CON SO
SYS CON SCK
CLOG
COMP SYNC
PB SP/LP
RP PB MODE
FF ON
JOG VD
RF CONT * 1

- * 1. Set the (SP...)

* 2. According (SP...)

* 3. 1V period

* 5. "H" up

* 6. Positive

* 7. "H" with

* 9. 1V period

Timing Chart

RF SWP

SEL 1

REF PILOT

SEL 2

4-8. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE (IC401 ON CM-13 BOARD)

SIGNAL	I/O	Pin No.	STOP	FF	REW	CUE	REVIEW	PB	PB • PAUSE	REC	REC • PAUSE	X2	SLOW	AF REC	AF REC PAUSE
LP PB 1 CH	O	IC401 ⑥ pin	H	H	H	H	H	H	H	2	H	H	H		
LP PB 2 CH	O	IC401 ⑦ pin	H	H	H	H	H	H	H	2	H	H	H		
JOG	O	IC401 ⑧ pin	L	L	L	H	H	L	H	L	L	H	H	L	H
SP/⌄P	O	IC401 ⑫ pin	H/L	H/L	H/L	* 1	* 1	* 1	* 1	* 2	* 2	* 1	* 1	* 1	* 1
SYS CON SO (SI)	O	IC401 ⑳ pin	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9
SYS CON SCK (SCK)	I	IC401 ㉑ pin	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10
CLOG	I	IC401 ㉗ pin	H	* 5	* 5	* 5	* 5	* 5	H	H	H	H	H	* H	H
COMP SYNC	I	IC401 ㉘ pin	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6
PB SP/LP	I	IC401 ㉙ pin	L	* 7	* 7	* 7	* 7	L	L	L	L	L	L	L	L
RP PB MODE	O	IC401 ㉚ pin	L	L	L	H	H	H	H	L	L	H	H	H	H
FF ON	O	IC401 ㉛ pin	H	H	H	H	H	H	H	L	H	H	H	* 12	H
JOG VD	O	IC401 ㉜ pin	L	L	L	* 3	* 3	L	* 3	L	L	* 3	* 3	* 3	* 3
RF CONT * 1	O	IC401 ㉝ pin	1.8Vdc	* 11	* 11	* 11	* 11	* 11	* 11	* 11	* 11	* 11	* 11	* 11	* 11

- * 1. Set the recording mode replaying tape.
(SP... "H", LP... "L")

* 2. According to the position of SP/LP selector (S602)
(SP... "H", LP... "L")

* 3. 1V period "H" pulse

* 5. "H" upon no signal. Normally "L."

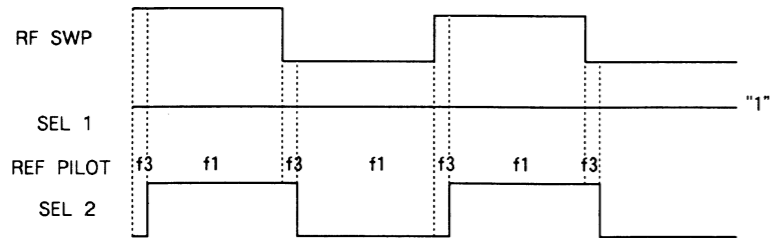
* 6. Positive polarity complex synchronization signal

* 7. "H" with the tape recorded in SP mode. "L" with the tape recorded in LP mode.

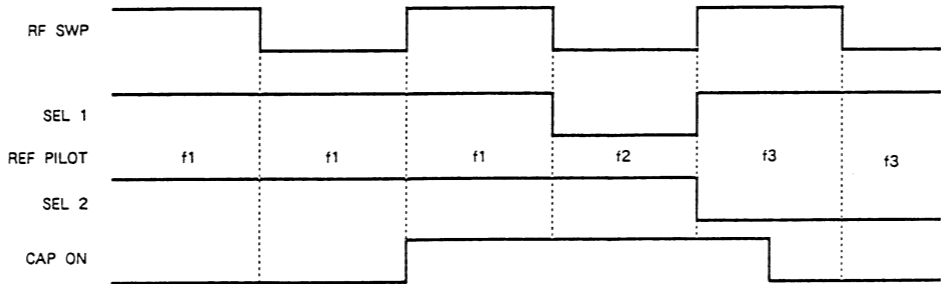
* 9. 1V period "L" pulse string

- * 10. Pulse of the frequency proportional to tape speed
- * 11. 50% duty pulse of 2V period.

Timing Chart (× 2)

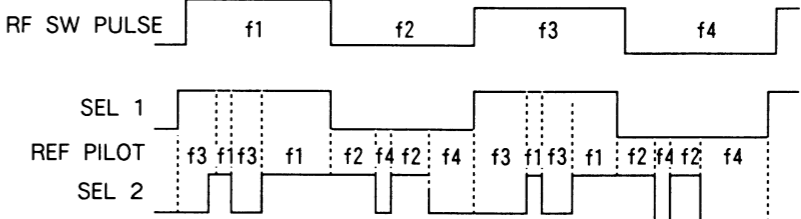


Timing Chart (SLOW)



When f1 : from STILL to STEP
If from f3 : f1⇒f3, f2⇒f4, f3⇒f1

Timing Chart (AF REC)



4-9. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (IC401 ON CM-13 BOARD)

SIGNAL	I/O	Pin No.	INPUT/OUTPUT LEVEL
$\overline{\text{SYSCON SCK}}$	I	IC401 ③ Pin	1V period "L" pulse string.
CLOG	I	IC401 ⑤ Pin	"L" in normal replaying. "H" when PB RF signal cannot be replayed because of head jam or no signal.
PB SP/ $\overline{\text{LP}}$	I	IC401 ⑤ Pin	Discriminates tape recording mode in tape high – speed running mode (FF, REW, CUE, REVIEW). "H" or "L" in SP or LP mode respectively.
UNLD	O	IC401 ⑩ Pin	Normally "L." "H" in UNTHREADING. "H" pulse during transition to mechanical mode.
LD	O	IC401 ⑪ Pin	Normally "L." "H" in THREADING. "H" pulse during transition to mechanical mode.
FL UNLD	O	IC401 ⑬ Pin	Normally "L." "H" in front loading.
LD	O	IC401 ⑭ Pin	Normally "L." "H" in front unloading.
FERA	O	IC401 ⑬ Pin	"H" with mask area in after – recording. Normally "L."
$\overline{\text{DRUM ACCELL}}$	O	IC401 ⑤ Pin	Normally "L." Instantly "L" in SLOW.
DRUM BRAKE	O	IC401 ⑥ Pin	Normally "L." Instantly "H" in LP SLOW.
H CHG MECHA	O	IC401 ⑩ Pin	Normally "L." The phase is reversed to SWP in SLOW, $\times 2$ or STILL.
C GAIN UP	O	IC401 ⑬ Pin	"H" in FF/REW. Normally "L."
REEL LED	O	IC401 ⑭ Pin	Reel LED flickering pulse.
PCM REC INH	O	IC401 ⑭ Pin	"L" in PCM REC. Normally "H."
AF REC	O	IC401 ⑭ Pin	Normally "L." "H" in after – recording.
VI SWP	O	IC401 ④ Pin	Normally "H" in the same SLOW, STILL or $\times 2$ as SWP.
TS B	O	IC401 ⑨ Pin	ATF AGC pulse.
PCM PB	O	IC401 ⑬ Pin	"H" in PCM PB.

4-10. SYSTEM CONTROL – MECHANISM CONTROL BLOCK INTERFACE (IC401, CN405 ON CM-13 BOARD)

SIGNAL	I/O	Pin No.	INPUT/OUTPUT LEVEL																													
S REEL FG	I	IC401 ④ Pin	This pulse (5.0 Vp – p) is generated as reel S revolved. Its period is about 1 sec in REC/PB (SP) mode.																													
MODE SW 2	I	CN405 ④ Pin	<div>Connected to the mode switch to detect input position.</div> <table><tr><th></th><th>EJECTED</th><th>THREADING UNTHREADING</th><th>STOP</th><th>REC/PB/FF/ REW/CUE/REVIEW /PAUSE</th></tr><tr><td>MODE SW 2 (④–⑦)</td><td>○</td><td>×</td><td>×</td><td>○</td></tr><tr><td>MODE SW 1 (⑤–⑦)</td><td>○</td><td>○</td><td>○</td><td>×</td></tr><tr><td>MODE SW 0 (⑥–⑦)</td><td>×</td><td>×</td><td>○</td><td>○</td></tr><tr><td colspan="5">× …Open ○ …Short</td></tr></table>						EJECTED	THREADING UNTHREADING	STOP	REC/PB/FF/ REW/CUE/REVIEW /PAUSE	MODE SW 2 (④–⑦)	○	×	×	○	MODE SW 1 (⑤–⑦)	○	○	○	×	MODE SW 0 (⑥–⑦)	×	×	○	○	× …Open ○ …Short				
	EJECTED	THREADING UNTHREADING						STOP	REC/PB/FF/ REW/CUE/REVIEW /PAUSE																							
MODE SW 2 (④–⑦)	○	×						×	○																							
MODE SW 1 (⑤–⑦)	○	○						○	×																							
MODE SW 0 (⑥–⑦)	×	×						○	○																							
× …Open ○ …Short																																
MODE SW 1	I	CN405 ⑤ Pin																														
MODE SW 0	I	CN405 ⑥ Pin																														
M OUT 0 (COM)	O	CN405 ⑦ Pin																														
CC DOWN	I	CN405 ⑧ Pin	<div>Connected to the switch (CC DOWN switch) to detect cassette compartment down. With cassette compartment located on the bottom – Pins⑧–⑦ are shorted. With cassette compartment located at the top……Pins⑧–⑦ are open.</div>																													
M OUT 0 (COM)	O	CN405 ⑦ Pin																														
END SENS	I	CN405 ⑨ Pin	Pins⑧–⑦ are open when front loading is operating. Normally “L.”																													
13/10	I	CN405 ⑩ Pin	“H” pulse upon tape end or without cassette. This is not in use.																													
MP HG	I	CN405 ⑪ Pin	“H” pulse when normal MP tape is used. (20 msec period) “L” pulse of about 1 Vp – p.																													
TOP END LED	I	CN405 ⑬ Pin	Pulse period varies 12 – 170 msec depending on operation mode. Normally “L.”																													
TOP SENS	O	CN405 ⑭ Pin	“H” pulse upon tape top or without cassette. “L” with MP tape in use.																													
ME/MP	I	CN405 ⑮ Pin	“H” pulse without cassette. (20 msec period) “L” with recordable cassette mounted.																													
REC PROOF	I	CN405 ⑰ Pin	“H” pulse when REC protected cassette is mounted. (20 msec period)																													
T REEL FG	I	CN405 ⑱ Pin	Pulse generated by the revolution of reel T (5.0 Vp – p). About 1 sec period in REC /PB (SP) mode.																													

RD)

played because

mode (FF, REW,

n to mechanical

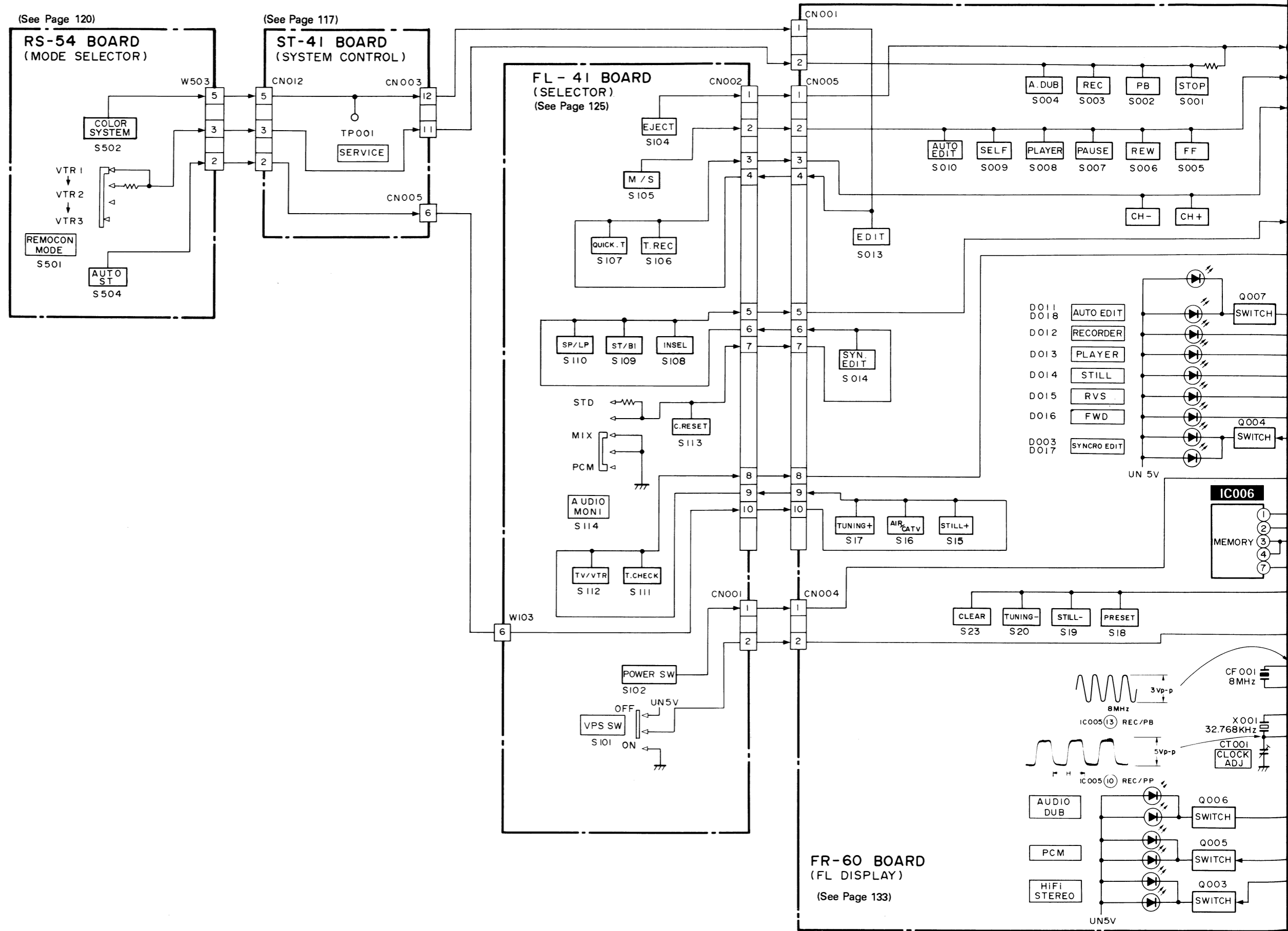
n to mechanical

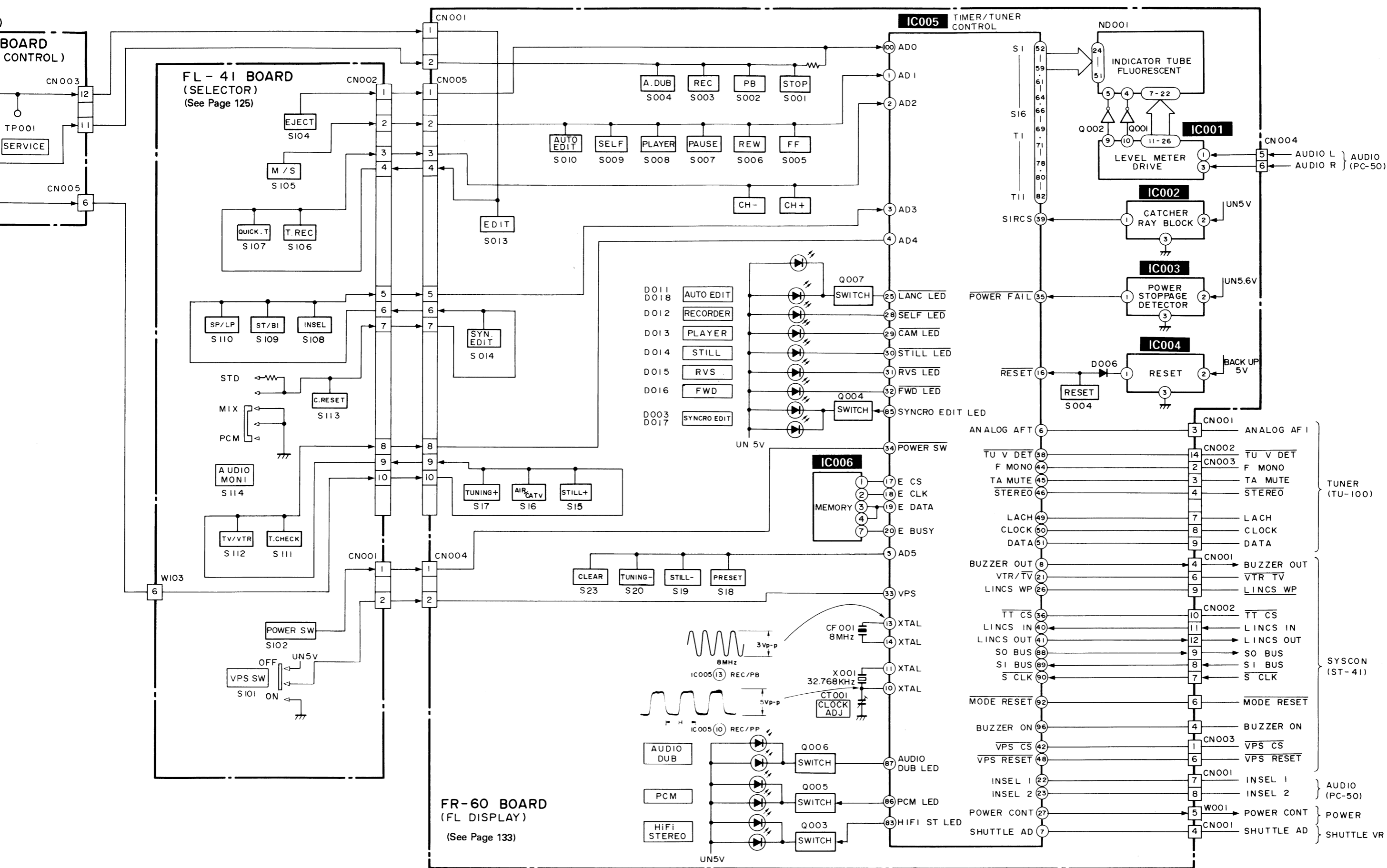
STILL.

4-10. SYSTEM CONTROL – MECHANISM CONTROL BLOCK INTERFACE (IC401, CN405 ON CM-13 BOARD)

SIGNAL	I/O	Pin No.	INPUT/OUTPUT LEVEL																													
S REEL FG	I	IC401 ④ Pin	This pulse (5.0 Vp – p) is generated as reel S revolved. Its period is about 1 sec in REC/PB (SP) mode.																													
MODE SW 2	I	CN405 ④ Pin	<div>Connected to the mode switch to detect input position.</div> <table><tr><th></th><th>EJECTED</th><th>THREADING UNTHREADING</th><th>STOP</th><th>REC/PB/FF/ REW/CUE/REVIEW /PAUSE</th></tr><tr><td>MODE SW 2 (④–⑦)</td><td>○</td><td>×</td><td>×</td><td>○</td></tr><tr><td>MODE SW 1 (⑤–⑦)</td><td>○</td><td>○</td><td>○</td><td>×</td></tr><tr><td>MODE SW 0 (⑥–⑦)</td><td>×</td><td>×</td><td>○</td><td>○</td></tr><tr><td colspan="5">× ...Open ○ ...Short</td></tr></table>						EJECTED	THREADING UNTHREADING	STOP	REC/PB/FF/ REW/CUE/REVIEW /PAUSE	MODE SW 2 (④–⑦)	○	×	×	○	MODE SW 1 (⑤–⑦)	○	○	○	×	MODE SW 0 (⑥–⑦)	×	×	○	○	× ...Open ○ ...Short				
	EJECTED	THREADING UNTHREADING						STOP	REC/PB/FF/ REW/CUE/REVIEW /PAUSE																							
MODE SW 2 (④–⑦)	○	×						×	○																							
MODE SW 1 (⑤–⑦)	○	○						○	×																							
MODE SW 0 (⑥–⑦)	×	×						○	○																							
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MODE SW 1	I	CN405 ⑤ Pin																														
MODE SW 0	I	CN405 ⑥ Pin																														
M OUT 0 (COM)	O	CN405 ⑦ Pin																														
CC DOWN	I	CN405 ⑧ Pin	<div>Connected to the switch (CC DOWN switch) to detect cassette compartment down. With cassette compartment located on the bottom – Pins⑧–⑦are shorted.</div> <div>With cassette compartment located at the top……Pins⑧–⑦are open.</div>																													
M OUT 0 (COM)	O	CN405 ⑦ Pin																														
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13/10	I	CN405 ⑩ Pin	“H” pulse upon tape end or without cassette. This is not in use.																													
MP HG	I	CN405 ⑫ Pin	“H” pulse when normal MP tape is used. (20 msec period) “L” pulse of about 1 Vp – p.																													
TOP END LED	I	CN405 ⑬ Pin	Pulse period varies 12 – 170 msec depending on operation mode. Normally “L.”																													
TOP SENS	O	CN405 ⑭ Pin	“H” pulse upon tape top or without cassette. “L” with MP tape in use.																													
ME/MP	I	CN405 ⑮ Pin	“H” pulse without cassette. (20 msec period) “L” with recordable cassette mounted.																													
REC PROOF	I	CN405 ⑰ Pin	“H” pulse when REC protected cassette is mounted. (20 msec period)																													
T REEL FG	I	CN405 ⑱ Pin	Pulse generated by the revolution of reel T (5.0 Vp – p). About 1 sec period in REC /PB (SP) mode.																													

4-11. T/T MICROCOMPUTER (CONTROL DISPLAY) BLOCK DIAGRAM





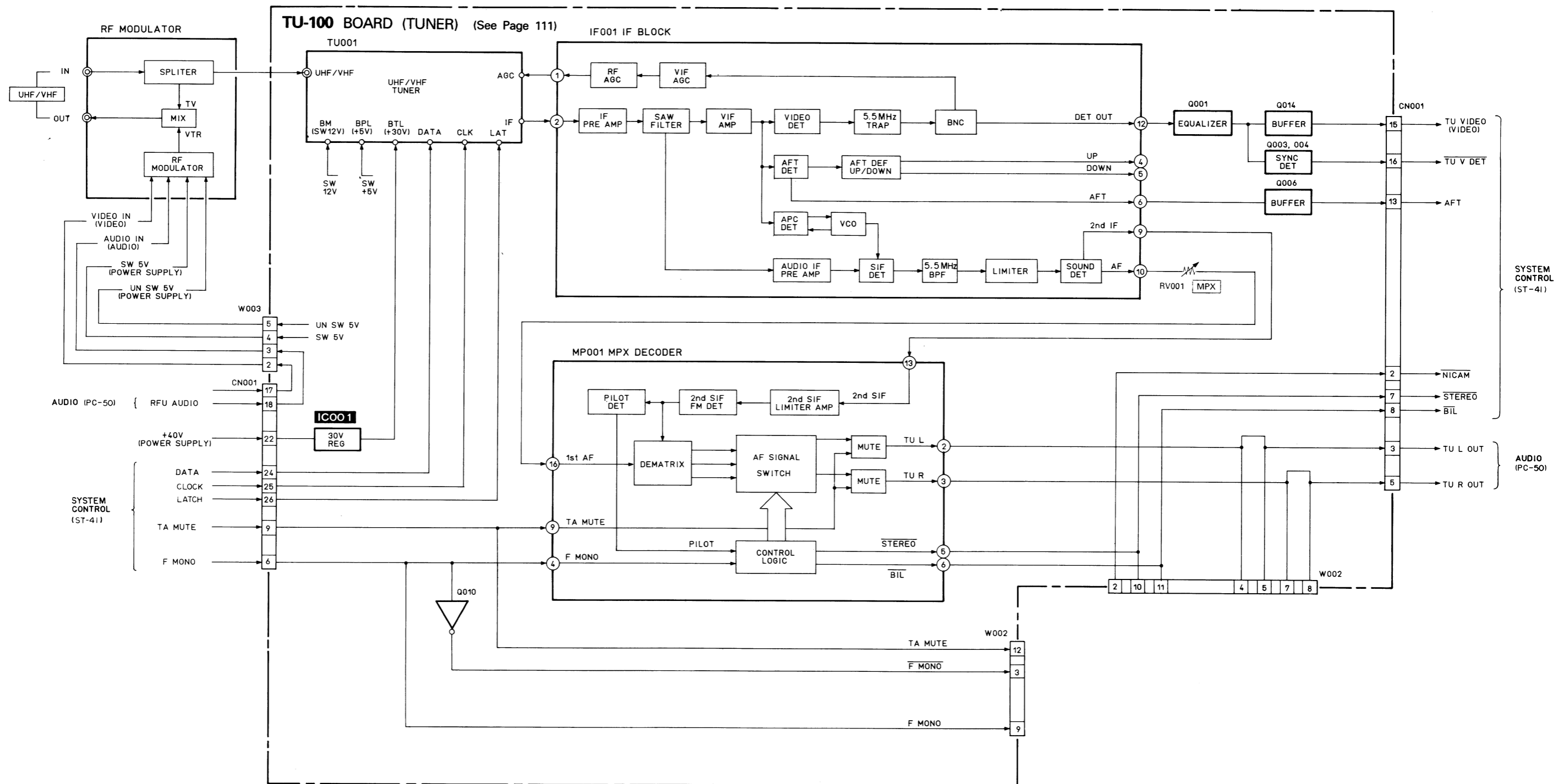
4-12. MODE CONTROL – MODE CONTROL PERIPHERAL CIRCUIT INTERFACE (IC001 ON ST-41 BOARD)

SIGNAL	I/O	Pin No.	INPUT/OUTPUT LEVEL
OUT PUT SEL 5	0	IC001 ① Pin	"L" with AUDIO monitor switch in PCM.
OUT PUT SEL 6	0	IC001 ② Pin	"L" with AUDIO monitor switch in PCM.
OUT PUT SEL 1	0	IC001 ③ Pin	"H" with AUDIO monitor switch in PCM. However, MONO STEREO.
OUT PUT SEL 2	0	IC001 ④ Pin	"H" with AUDIO monitor switch in PCM. However, MONO STEREO.
OUT PUT SEL 3	0	IC001 ⑤ Pin	"H" with AUDIO monitor switch in PCM. However, MONO STEREO.
OUT PUT SEL 4	0	IC001 ⑥ Pin	"H" with AUDIO monitor switch in PCM. However, MONO STEREO.
PCM ACT	I	IC001 ⑩ Pin	"H" when PCM recorded tape is replayed.
AF ST	0	IC001 ⑪ Pin	"L" when AFM stereo recorded tape is replayed.
AF BIL DET	I	IC001 ⑬ Pin	"L" when AFM bilingual recorded tape is replayed.
AF ST DET	I	IC001 ⑭ Pin	"L" when AFM stereo recorded tape is replayed.
MAKER CS	0	IC001 ⑰ Pin	"L" pulse of 1V period. (only when power is ON)
PCM RAM CS	0	IC001 ⑱ Pin	"L" pulse of 1V period. (only when power is ON)
TT CS	0	IC001 ⑲ Pin	"L" pulse of 1V period.
MECHA CS	0	IC001 ⑳ Pin	"L" pulse of 1V period. (only when power is ON)
LINCS P COST	0	IC001 ㉑ Pin	"H" when power is ON and LANC M/S = S.
V MUTE	0	IC001 ㉒ Pin	"H" when VIDEO is muted.
SYS RESET	0	IC001 ㉔ Pin	"H" when power is ON.
ME/MP	0	IC001 ㉕ Pin	"H" with MPHG cassette mounted.
OUT PB	0	IC001 ㉖ Pin	"H" upon replaying.
VIDEO PB	0	IC001 ㉗ Pin	"H" upon replaying.
AUDIO PB	0	IC001 ㉘ Pin	"H" upon replaying. ("L" upon AUDIO INSERT)
AF BIL	0	IC001 ㉙ Pin	"L" when AFM bilingual recorded tape is replayed.
AUDIO ATT	0	IC001 ㉚ Pin	"L" when index mark is detected in replaying.
X2	0	IC001 ㉛ Pin	X2
VIDEO CS	0	IC001 ㉜ Pin	"L" pulse of 1V period. (only when power is ON)

4-13. TIMER/TUNER CONTROL – TIMER/TUNER PERIPHERAL INTERFACE (IC005 ON FR-60 BOARD)

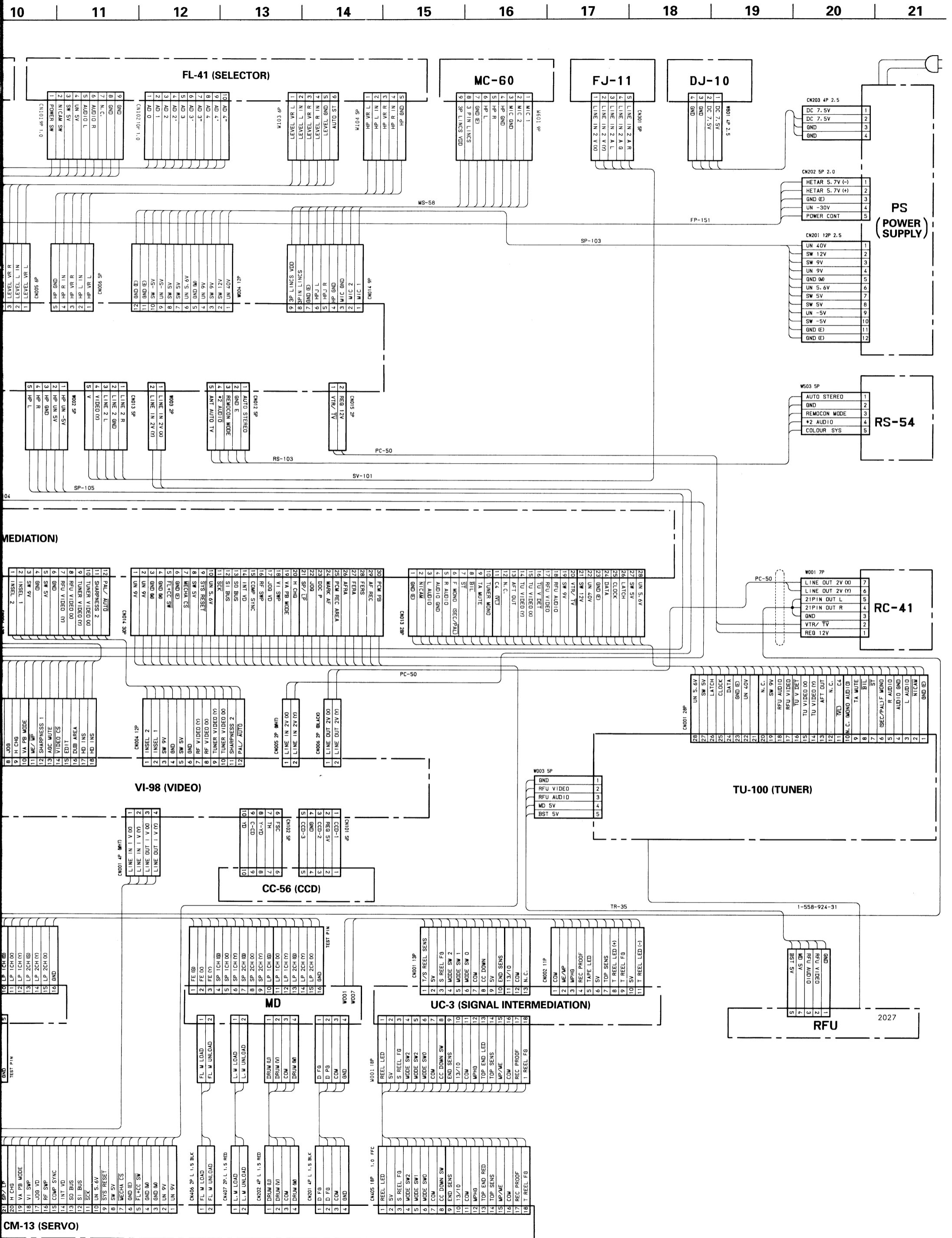
SIGNAL	I/O	Pin No.	INPUT/OUTPUT LEVEL																																																															
AD0	I	⑩ Pin	<table><tr><td></td><td>0V</td><td>1</td><td>1.6</td><td>2.3</td><td>2.9</td><td>3.6</td><td>4.3</td></tr><tr><td>AD0</td><td>EJECT</td><td>STOP</td><td>PB</td><td>REC</td><td>AINS</td><td>REMOCON 1</td><td>REMOCON 2</td></tr><tr><td>AD1</td><td>FF</td><td>REW</td><td>PAUSE</td><td>PLAYER</td><td>RECORDER</td><td>AUTO</td><td>M/S</td></tr><tr><td>AD2</td><td>CH +</td><td>CH -</td><td>T. REC</td><td>QUICK TIMER</td><td>EDIT</td><td>SERVICE</td><td>COLOR SYSTEM</td></tr><tr><td>AD3</td><td>INPUT SELECT</td><td>ST/BI</td><td>SP/LP</td><td>SYNC EDIT</td><td>COUNTER RESET</td><td>AUDIO M1</td><td>AUDIO M2</td></tr><tr><td>AD4</td><td>TIMER CHECK</td><td>TV/VTR</td><td>STILL +</td><td>AIR/CATV</td><td>TUNING +</td><td></td><td>AUTO STELEO</td></tr><tr><td>AD5</td><td>PRESET</td><td>STILL -</td><td>TUNING -</td><td></td><td></td><td>CLEAR</td><td>× 120</td></tr></table>									0V	1	1.6	2.3	2.9	3.6	4.3	AD0	EJECT	STOP	PB	REC	AINS	REMOCON 1	REMOCON 2	AD1	FF	REW	PAUSE	PLAYER	RECORDER	AUTO	M/S	AD2	CH +	CH -	T. REC	QUICK TIMER	EDIT	SERVICE	COLOR SYSTEM	AD3	INPUT SELECT	ST/BI	SP/LP	SYNC EDIT	COUNTER RESET	AUDIO M1	AUDIO M2	AD4	TIMER CHECK	TV/VTR	STILL +	AIR/CATV	TUNING +		AUTO STELEO	AD5	PRESET	STILL -	TUNING -			CLEAR	× 120
	0V	1	1.6	2.3	2.9	3.6	4.3																																																											
AD0	EJECT	STOP	PB	REC	AINS	REMOCON 1	REMOCON 2																																																											
AD1	FF	REW	PAUSE	PLAYER	RECORDER	AUTO	M/S																																																											
AD2	CH +	CH -	T. REC	QUICK TIMER	EDIT	SERVICE	COLOR SYSTEM																																																											
AD3	INPUT SELECT	ST/BI	SP/LP	SYNC EDIT	COUNTER RESET	AUDIO M1	AUDIO M2																																																											
AD4	TIMER CHECK	TV/VTR	STILL +	AIR/CATV	TUNING +		AUTO STELEO																																																											
AD5	PRESET	STILL -	TUNING -			CLEAR	× 120																																																											
AD1	I	⑪ Pin																																																																
AD2	I	⑫ Pin																																																																
AD3	I	⑬ Pin																																																																
AD4	I	⑭ Pin	<table><tr><td colspan="2"></td><td>PCM</td><td>MIX</td><td>STD</td></tr><tr><td colspan="2">AUDIO M1</td><td>×</td><td>○</td><td>×</td></tr><tr><td colspan="2">AUDIO M2</td><td>×</td><td>×</td><td>○</td></tr></table>										PCM	MIX	STD	AUDIO M1		×	○	×	AUDIO M2		×	×	○																																									
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AD5	I	⑮ Pin	<table><tr><td colspan="2"></td><td>VTR 1</td><td>VTR 2</td><td>VTR 3</td></tr><tr><td colspan="2">REMOCON 1</td><td>○</td><td>×</td><td>×</td></tr><tr><td colspan="2">REMOCON 2</td><td>×</td><td>○</td><td>×</td></tr></table>										VTR 1	VTR 2	VTR 3	REMOCON 1		○	×	×	REMOCON 2		×	○	×																																									
		VTR 1	VTR 2	VTR 3																																																														
REMOCON 1		○	×	×																																																														
REMOCON 2		×	○	×																																																														
E CS	O	⑰ Pin	"H" pulse when changing channel over.																																																															
E CLK	O	⑱ Pin	Pulse string with Pin ⑰ in "H".																																																															
E DATA	I/O	⑲ Pin	Pulse string with Pin ⑰ in "H".																																																															
E BUSY	I	⑳ Pin	"L" pulse only when data is written.																																																															
VTR/TV	O	㉑ Pin	"L" when antenna select knob is selected to TV.																																																															
IN SEL 1	O	㉒ Pin	"H" when rear LINE input is selected.																																																															
IN SEL 2	O	㉓ Pin	"H" when front LINE input is selected.																																																															
POWER CONT	O	㉔ Pin	"H" when power is ON.																																																															
POWER FAIL	I	㉕ Pin	"L" when UN5V is 4.0 – 4.3 V or less.																																																															
TT CS	I	㉖ Pin	"L" pulse of 1V period.																																																															
TU V DET	I	㉗ Pin	"L" when tuner video is received.																																																															
TA MUTE	O	㉘ Pin	"H" pulse when changing channel over.																																																															
STEREO	I	㉙ Pin	"L" when tuner receives stereo signal.																																																															
BILINGUAL	I	㉚ Pin	"L" when tuner receives or transmits bilingual broadcasting signal.																																																															
LATCH	O	㉛ Pin	"H" pulse when changing channel over.																																																															
CLOCK	O	㉜ Pin	Pulse string with Pin ㉜ in "H".																																																															
DATA	O	㉝ Pin	Pulse string with Pin ㉜ in "H".																																																															
VPS CS	O	㉞ Pin	1 V cycle "L" PULSE																																																															

4-14. TUNER BLOCK DIAGRAM



PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

[illegible]



5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- For printed wiring boards:
- : indicated a lead wire mounted on the component side.
 - : indicated a lead wire mounted on the conductor side.
 - : Parts mounted on the conductor side.
 - ▨ : Pattern from the side which enables seeing. } The inner two layers' patterns are not indicated.
 - ▩ : Pattern of the rear side.*
 - Circled numbers refer to waveforms.*
 - (B) or (F), etc. of capacitors indicate the temperature characteristics.

Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.

- For schematic diagram:
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - ⊞ : nonflammable resistor.
 - ⊞ : fusible resistor.
 - : panel designation.
 - △ : internal component.
 - : adjustment for repair.*
 - : B + Line.*
 - - - : B - Line.*
 - ⇒ : IN/OUT direction of (+, -) B LINE.*
 - Circled numbers refer to waveforms.*
 - Voltages are DC between measurement points and ground unless otherwise noted.*
 - Readings are taken with a color-bar signal input.*
 - Readings are taken with a digital multimeter (DC10MΩ).*
 - Voltage variations may be noted due to normal production tolerances.*
 - Circled numbers refer to waveforms.
 - *: indicated by the color red.

When indicating parts by reference number, please include the board name.

Note:
The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

RP-69 (HEAD AMP) PRINTED WIRING BOARD
—Ref. No. RP-69 Board: 1000 series—

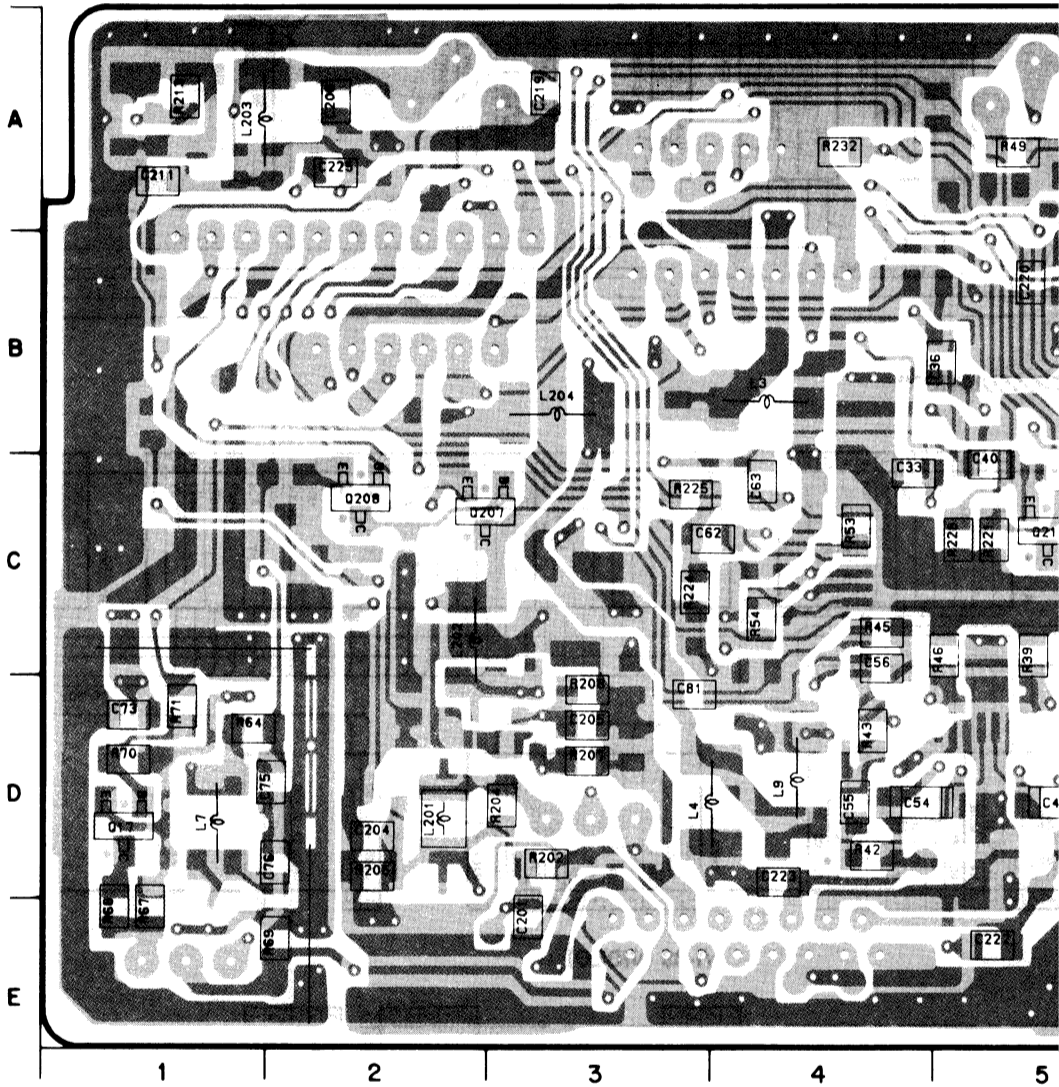
Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.

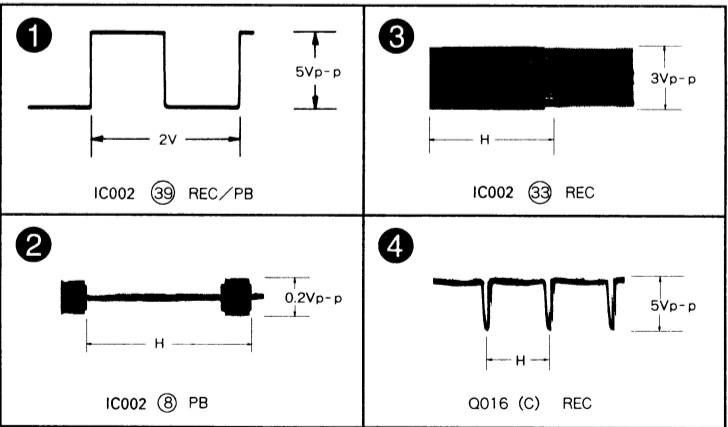
Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.

IC			
IC002	8-752-032-35	IC	CXA1202Q-Z
IC003	8-759-710-09	IC	NJM2233AM
TRANSISTOR			
Q006	8-729-901-01	TRANSISTOR	DTC144EK
Q007	8-729-901-01	TRANSISTOR	DTC144EK
Q011	8-729-901-06	TRANSISTOR	DTA144EK
Q015	8-729-216-22	TRANSISTOR	2SA1162
Q016	8-729-119-76	TRANSISTOR	2SA1175-HFE
Q017	8-729-216-22	TRANSISTOR	2SA1162
Q201	8-729-202-38	TRANSISTOR	2SC3326N
Q202	8-729-353-53	TRANSISTOR	2SC535-C
Q203	8-729-100-66	TRANSISTOR	2SC1623
Q204	8-729-100-66	TRANSISTOR	2SC1623
Q205	8-729-100-66	TRANSISTOR	2SC1623
Q206	8-729-100-66	TRANSISTOR	2SC1623
Q207	8-729-901-05	TRANSISTOR	DTA124EK
Q208	8-729-901-00	TRANSISTOR	DTC124EK
Q209	8-729-901-04	TRANSISTOR	DTA114EK
Q210	8-729-100-66	TRANSISTOR	2SC1623
Q211	8-729-100-66	TRANSISTOR	2SC1623
Q212	8-729-100-66	TRANSISTOR	2SC1623

RP-69 BOARD
(CONDUCTOR SIDE)



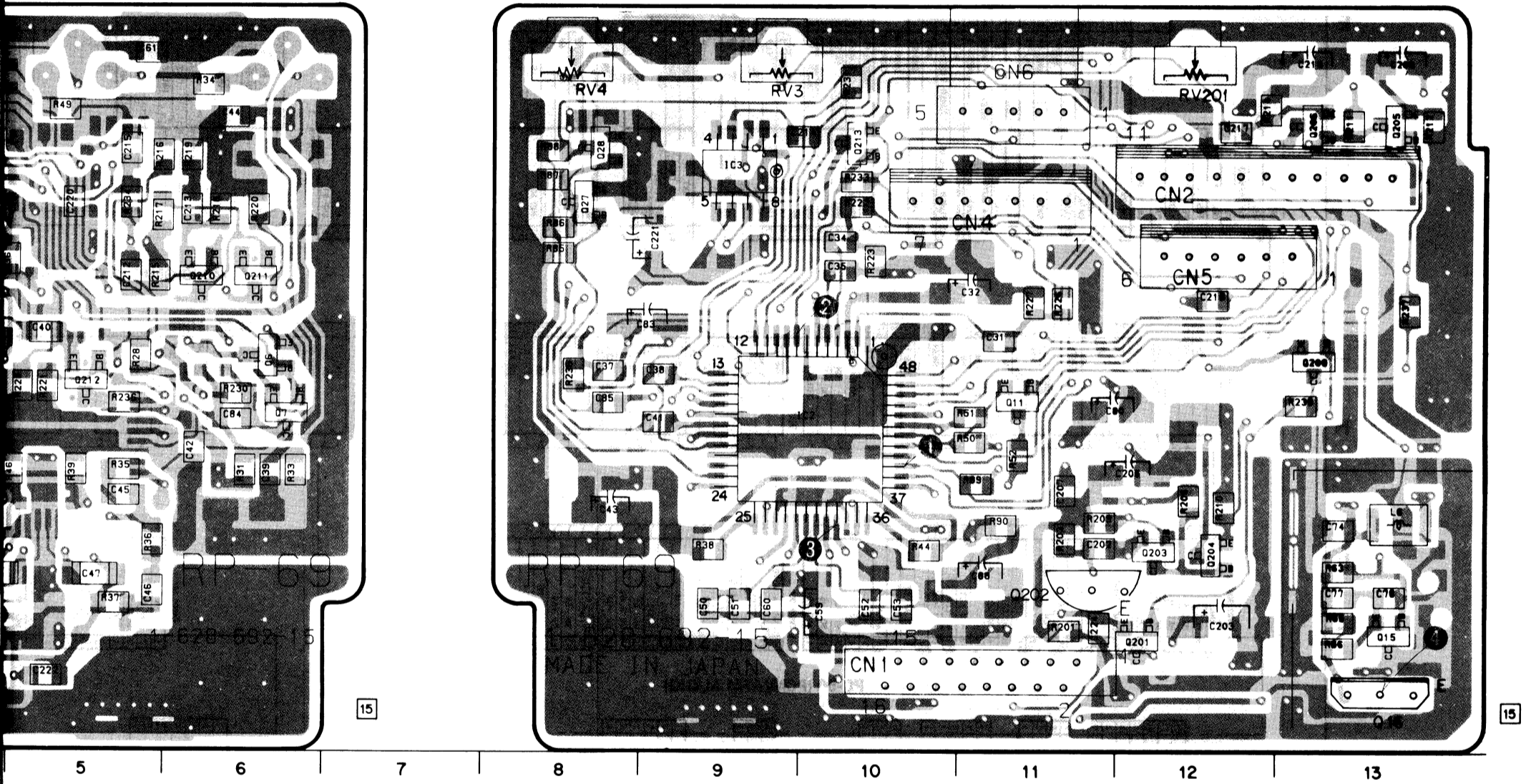
RP-69 BOARD



Parts on the pattern face side seen from the pattern face are indicated.

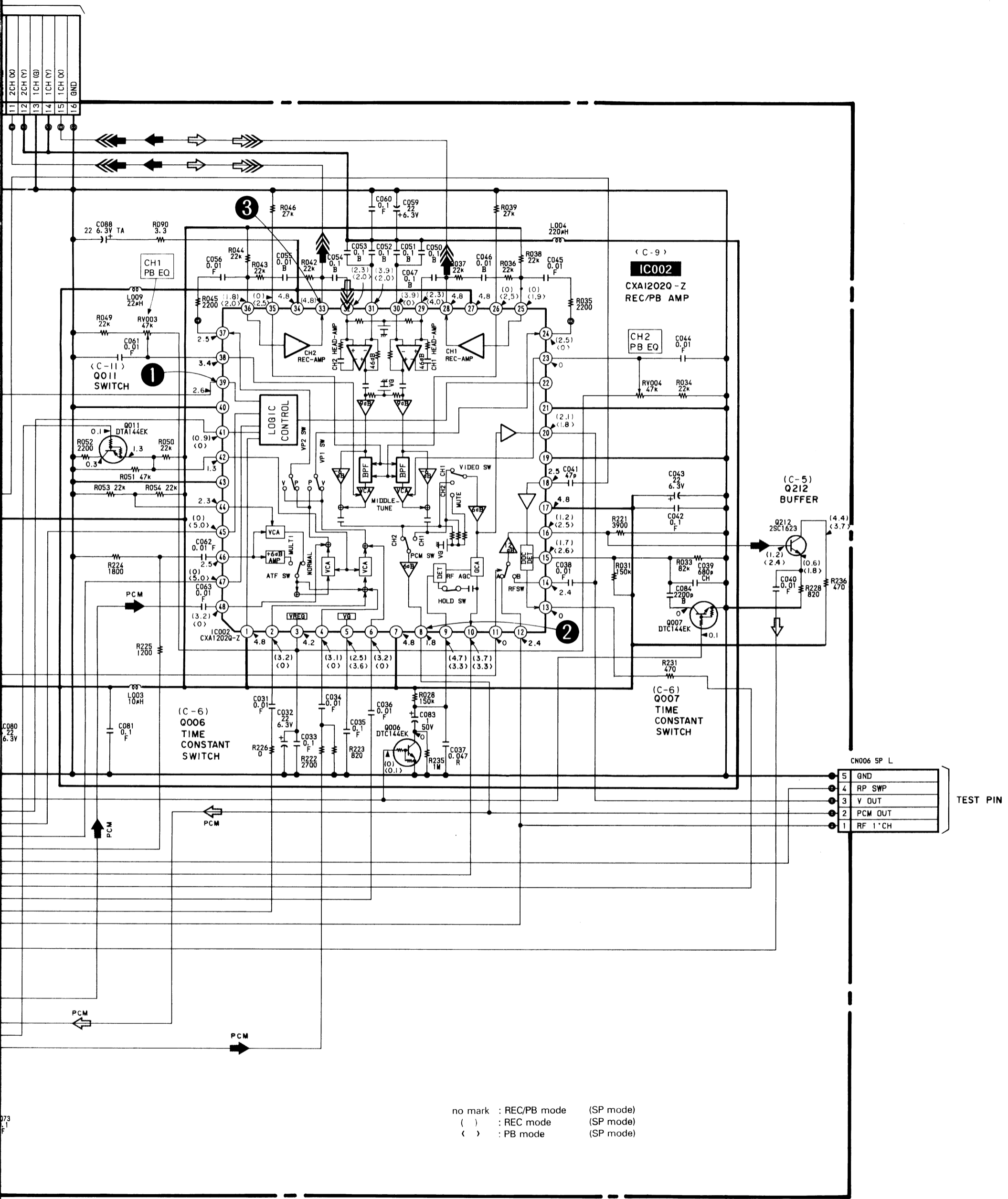
Parts on the parts face side seen from the parts face are indicated.

RP-69 BOARD
(COMPONENT SIDE)





10 11 12 13 15 16 17 18 19 20 21 22



no mark : REC/PB mode (SP mode)
() : REC mode (SP mode)
< > : PB mode (SP mode)

• SIGNAL PATH

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡➡➡	➡
PB			➡➡➡	➡

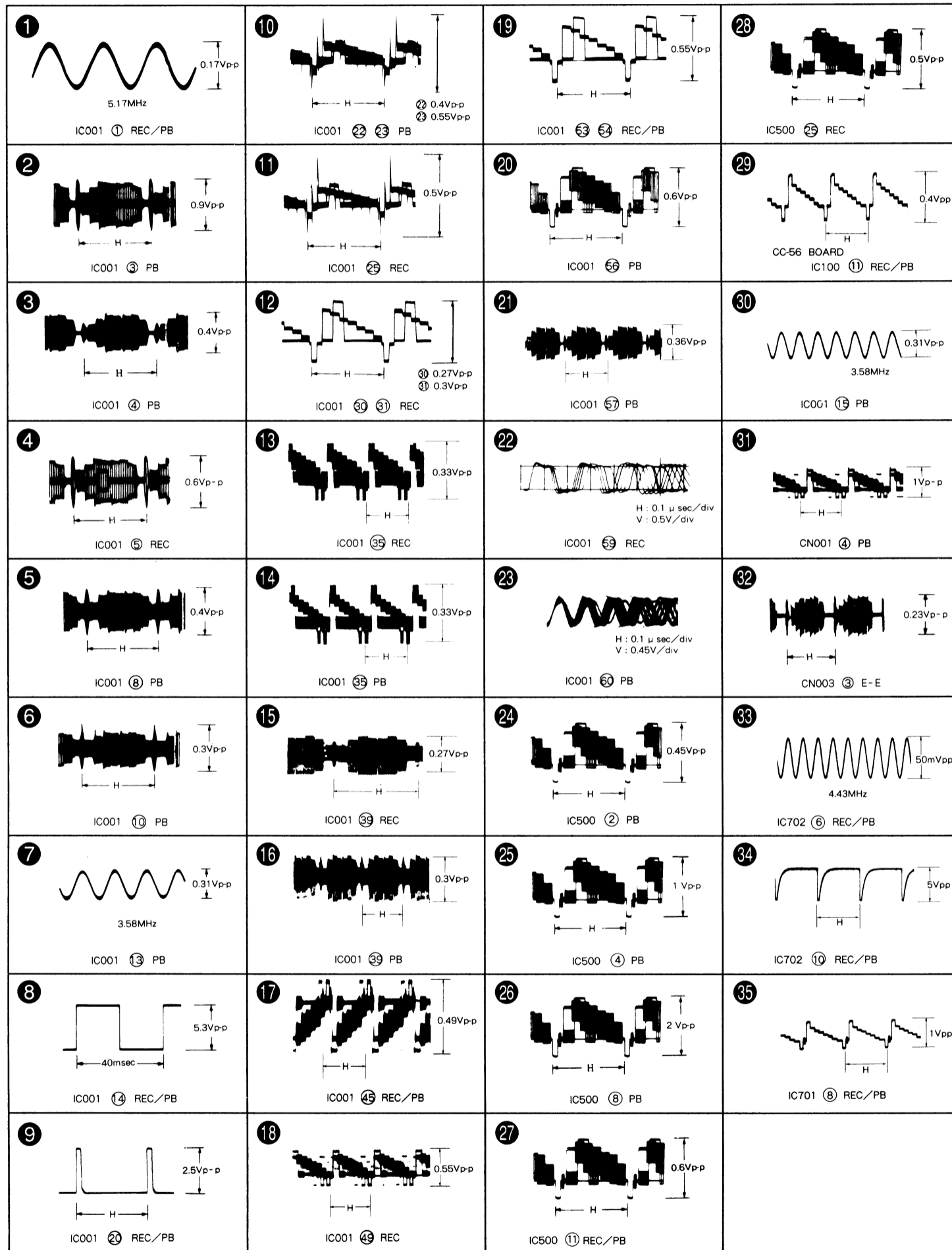
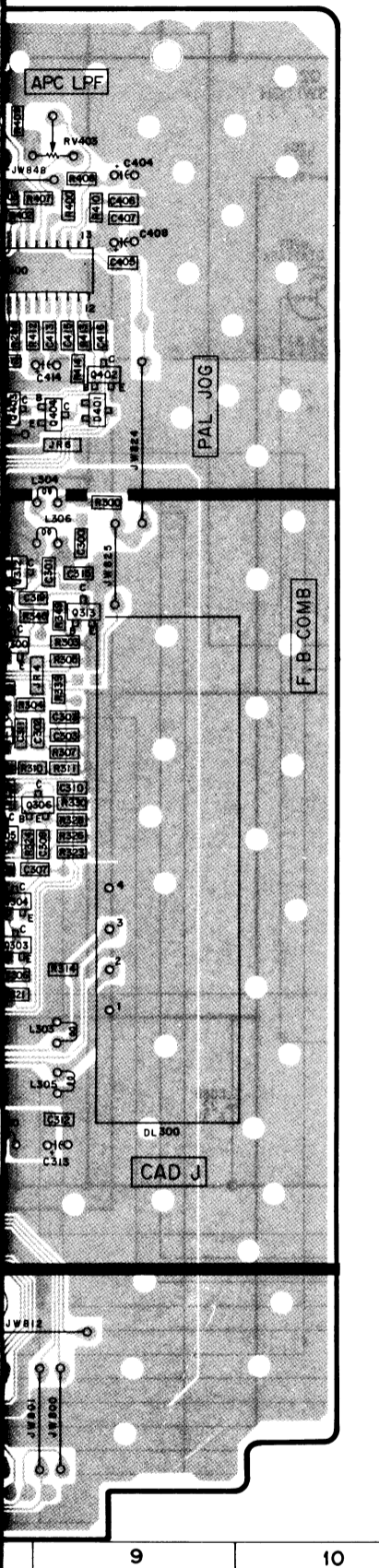
Parts face side: Parts on the parts face side seen from the
(Component side) parts face are indicated.

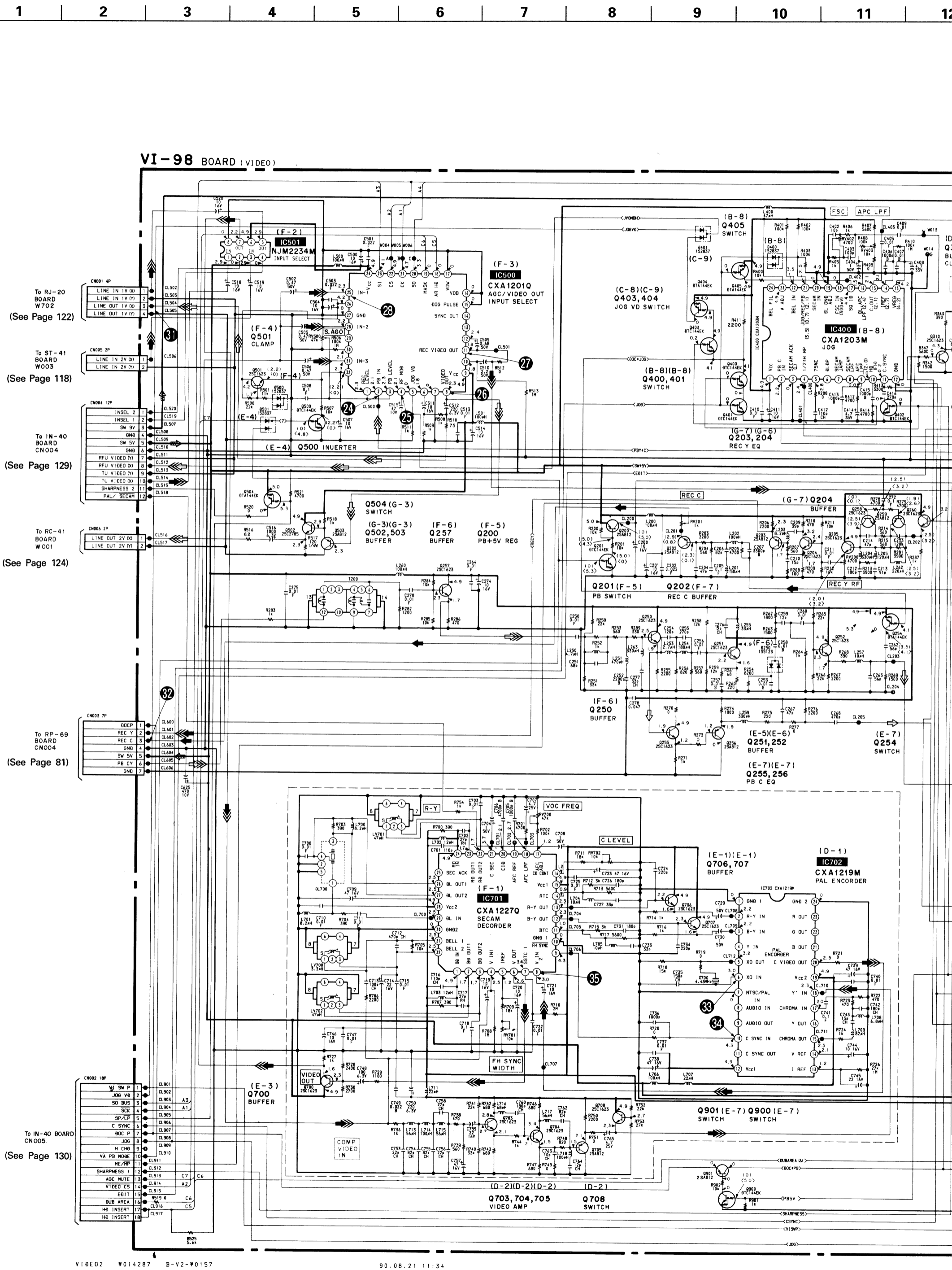
DIODE				IC				TRANSISTOR			
D001	8-719-800-76	DIODE	1SS226	IC001	8-752-034-40	IC	CXA1200BQ	Q003	8-729-100-66	TRANSISTOR	2SC1623
D002	8-719-400-18	DIODE	MA152WK	IC400	8-752-031-49	IC	CXA1203M	Q004	8-729-100-66	TRANSISTOR	2SC1623
D250	8-719-800-76	DIODE	1SS226	IC500	8-752-033-40	IC	CXA1201Q	Q005	8-729-100-66	TRANSISTOR	2SC1623
D300	8-719-118-21	DIODE	1SS283	IC501	8-759-710-07	IC	NJM2234M	Q006	8-729-100-66	TRANSISTOR	2SC1623
D301	8-719-118-21	DIODE	1SS283	IC701	8-752-035-00	IC	CXA1227Q	Q007	8-729-901-01	TRANSISTOR	DTC144EK
D400	8-719-400-18	DIODE	MA152WK	IC702	8-752-034-04	IC	CXA1219M	Q008	8-729-901-06	TRANSISTOR	DTA144EK
D401	8-719-400-18	DIODE	MA152WK					Q009	8-729-100-66	TRANSISTOR	2SC1623
D500	8-719-400-18	DIODE	MA152WK					Q010	8-729-100-66	TRANSISTOR	2SC1623
D501	8-719-400-18	DIODE	MA152WK					Q011	8-729-216-22	TRANSISTOR	2SA1162
								Q012	8-729-100-66	TRANSISTOR	2SC1623
								Q013	8-729-100-66	TRANSISTOR	2SC1623
								Q014	8-729-216-22	TRANSISTOR	2SA1162
								Q015	8-729-100-66	TRANSISTOR	2SC1623
								Q016	8-729-216-22	TRANSISTOR	2SA1162
								Q017	8-729-216-22	TRANSISTOR	2SA1162

IC100 8-752-324-87 IC CXL1502M

TRANSISTOR	Q250	8-729-100-66	TRANSISTOR	2SC1623	Q305	8-729-100-66	TRANSISTOR	2SC1623	Q500	8-729-901-01	TRANSISTOR	DTC144EK
TRANSISTOR	Q251	8-729-100-66	TRANSISTOR	2SC1623	Q306	8-729-100-66	TRANSISTOR	2SC1623	Q501	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q252	8-729-100-66	TRANSISTOR	2SC1623	Q307	8-729-100-66	TRANSISTOR	2SC1623	Q502	8-729-119-78	TRANSISTOR	2SC2785-HFE
TRANSISTOR	Q254	8-729-901-06	TRANSISTOR	DTA144EK	Q308	8-729-901-06	TRANSISTOR	DTA144EK	Q503	8-729-216-22	TRANSISTOR	2SA1162
TRANSISTOR	Q255	8-729-100-66	TRANSISTOR	2SC1623	Q309	8-729-140-96	TRANSISTOR	2SD774-34	Q504	8-729-901-06	TRANSISTOR	DTA144EK
TRANSISTOR	Q256	8-729-216-22	TRANSISTOR	2SA1162	Q310	8-729-100-66	TRANSISTOR	2SC1623	Q700	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q257	8-729-100-66	TRANSISTOR	2SC1623	Q311	8-729-100-66	TRANSISTOR	2SC1623	Q703	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q258	8-729-100-66	TRANSISTOR	2SC1623	Q312	8-729-100-66	TRANSISTOR	2SC1623	Q704	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q259	8-729-216-22	TRANSISTOR	2SA1162	Q313	8-729-100-66	TRANSISTOR	2SC1623	Q705	8-729-216-22	TRANSISTOR	2SA1162
TRANSISTOR	Q260	8-729-100-66	TRANSISTOR	2SC1623	Q400	8-729-901-01	TRANSISTOR	DTC144EK	Q706	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q300	8-729-100-66	TRANSISTOR	2SC1623	Q401	8-729-901-01	TRANSISTOR	DTC144EK	Q707	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q301	8-729-100-66	TRANSISTOR	2SC1623	Q402	8-729-901-01	TRANSISTOR	DTC144EK	Q708	8-729-100-66	TRANSISTOR	2SC1623
TRANSISTOR	Q302	8-729-100-66	TRANSISTOR	2SC1623	Q403	8-729-901-01	TRANSISTOR	DTC144EK	Q900	8-729-901-01	TRANSISTOR	DTC144EK
TRANSISTOR	Q303	8-729-100-66	TRANSISTOR	2SC1623	Q404	8-729-901-06	TRANSISTOR	DTA144EK	Q901	8-729-216-22	TRANSISTOR	2SA1162
TRANSISTOR	Q304	8-729-100-66	TRANSISTOR	2SC1623	Q405	8-729-901-06	TRANSISTOR	DTA144EK	Q902	8-729-901-01	TRANSISTOR	DTC144EK
TRANSISTOR									Q903	8-729-901-06	TRANSISTOR	DTA144EK

VI-98 BOARD (VIDEO)











() : PB mode (SP mode)

- **SIGNAL PATH**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC		➡➡	➡➡➡	➡
PB		➡➡	➡➡➡	➡

[illegible]

VIDEO Signal			AUDIO Signal
ROMA	Y	Y/CHROMA	
			
			

[illegible]

The schematic diagram illustrates the internal circuitry of a VCR control system. It features several key components:

- DUS DECODER**: Receives address signals S₀, S₁, C_S, C_K, and S₂ from pins 20 through 24.
- CLAMP**: Four clamping stages are used throughout the circuit to stabilize signal levels.
- PULSE GEN**: A pulse generator that provides timing signals to various parts of the system.
- VCA (Video Control Amplifier)**: A 3G8 tube stage that processes video signals.
- AGC DET (Automatic Gain Control Detector)**: Detects AGC signals from the video input.
- REG 1.2V**: A regulated power supply source for the circuit.
- 6B8 and 6BD6 Tubes**: Vacuum tubes used for signal processing and amplification.
- Inputs and Outputs**: The system has multiple inputs (IN-1, IN-2, IN-3) and outputs (REC VIDEO OUT, VIDEO OUT). It also includes control inputs like REC LEVEL, PB IN, PB LEVEL, RF MOD, MASK, ARHOLD, and VON.
- Power Supply**: The circuit is powered by Vcc and GND connections.

The diagram shows a complex interconnection of these components, with numerous feedback loops and signal paths, typical of vintage electronic designs.

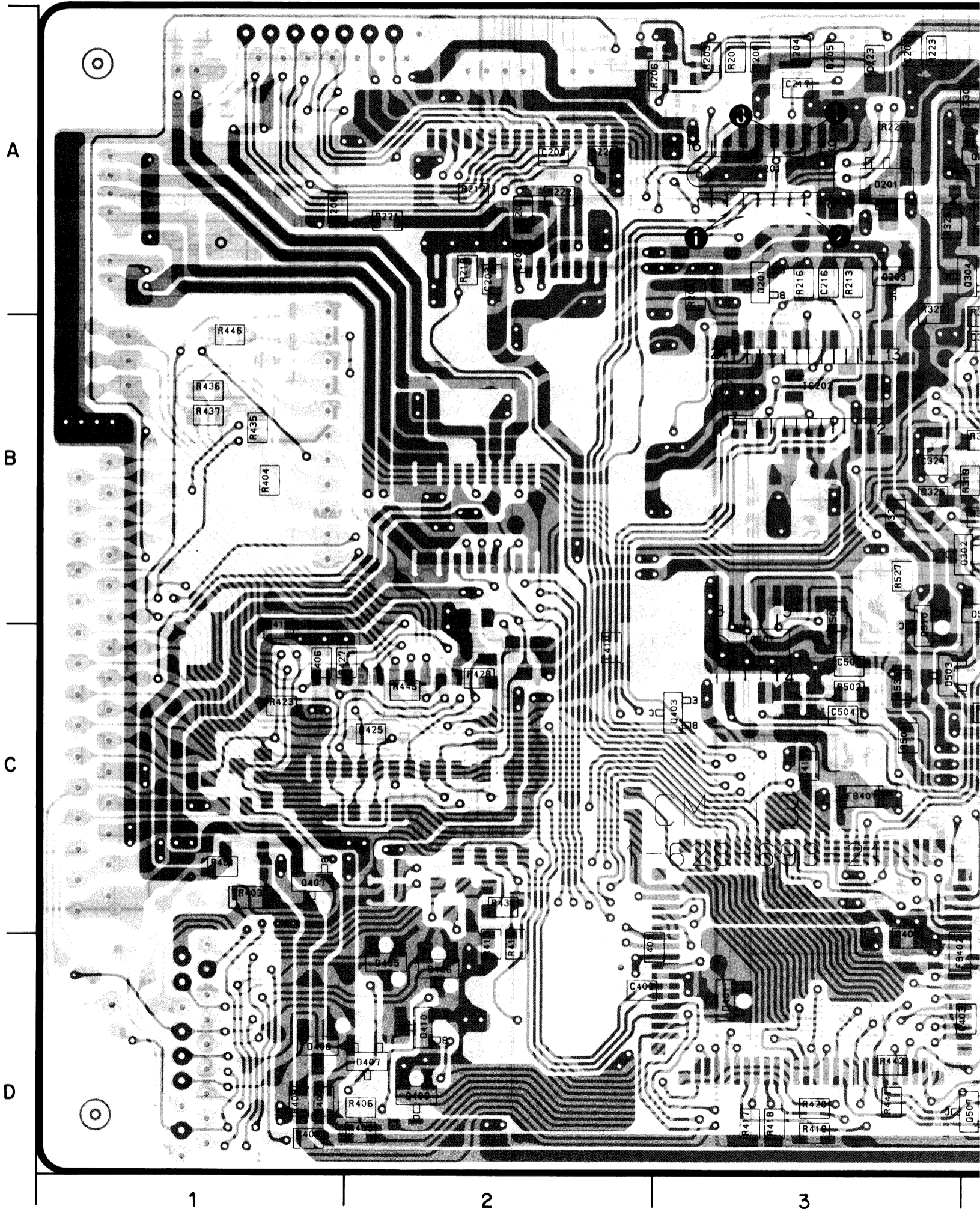
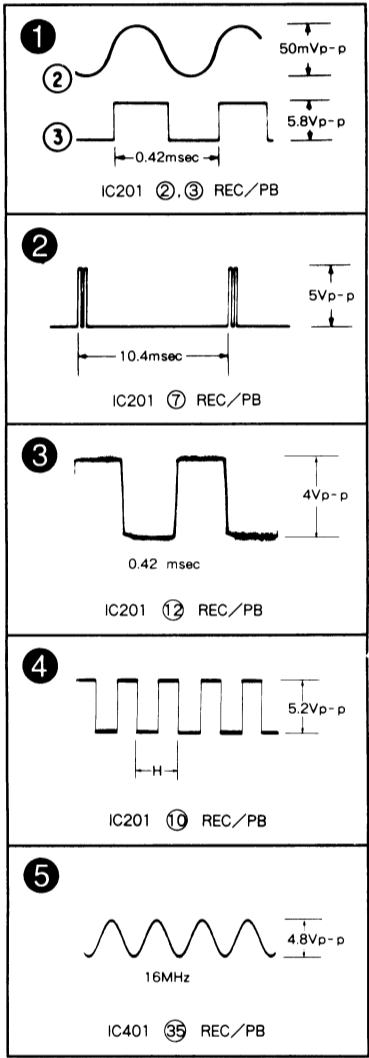
CM-13 (SERVO) PRINTED WIRING BOARD
—Ref. No. CM-13 Board: 3000 series—

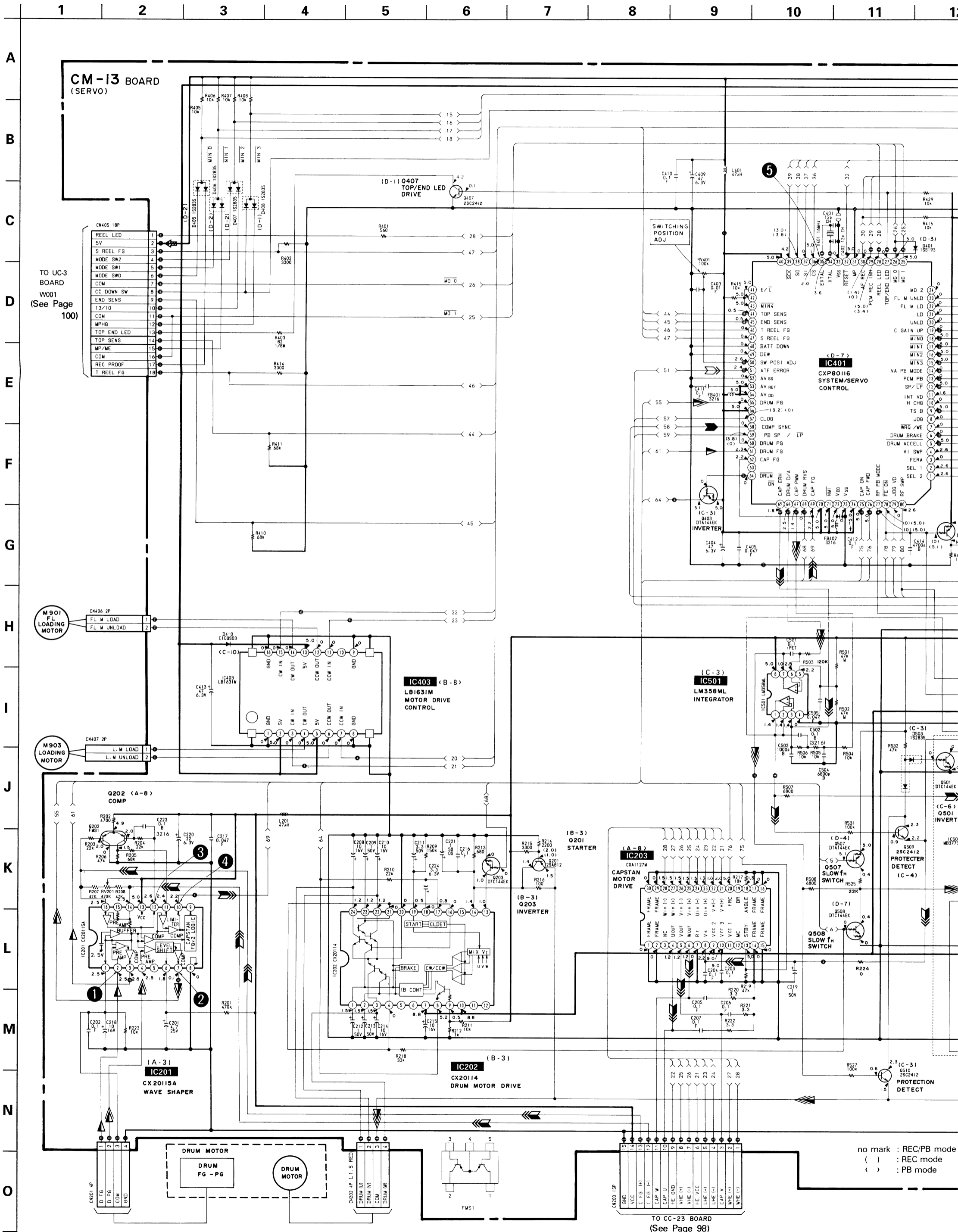
Caution:
Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.

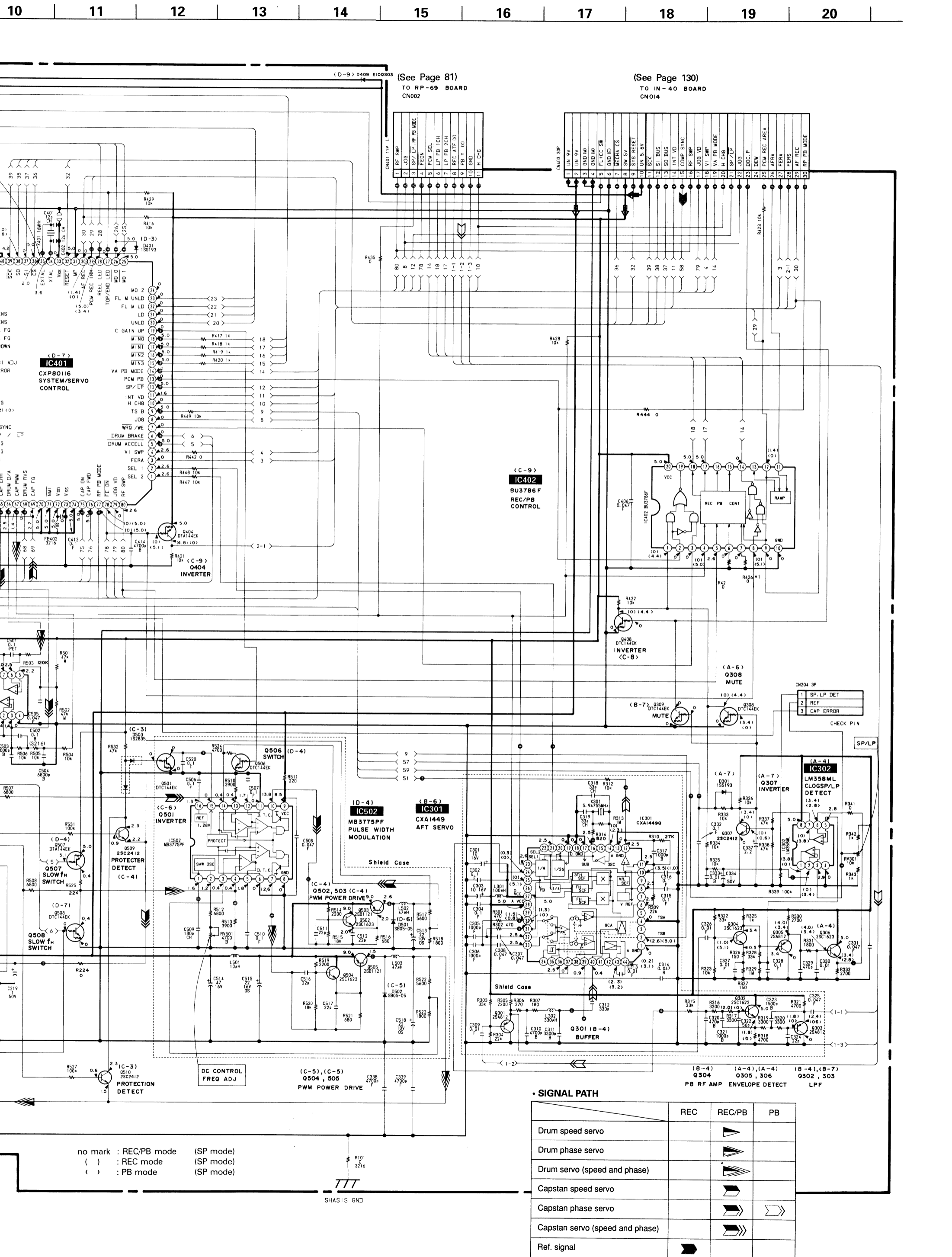
DIODE				IC				TRANSISTOR			
D301	8-719-400-18	DIODE	MA152WK	IC201	8-759-107-68	IC	CX20115A	Q201	8-729-216-22	TRANSISTOR	2SA1162
D401	8-719-400-18	DIODE	MA152WK	IC202	8-759-206-24	IC	CX20114	Q202	8-729-902-96	TRANSISTOR	FMS1
D405	8-719-104-34	DIODE	1S2836	IC203	8-759-805-06	IC	CXA1127M	Q203	8-729-901-01	TRANSISTOR	DTC144EK
D406	8-719-104-34	DIODE	1S2836	IC301	8-752-050-54	IC	CXA1449Q	Q301	8-729-216-22	TRANSISTOR	2SA1162
D407	8-719-104-34	DIODE	1S2836	IC302	8-759-013-22	IC	LM358MR	Q302	8-729-100-66	TRANSISTOR	2SC1623
D408	8-719-104-34	DIODE	1S2836	IC401	8-752-815-05	IC	CXP80116-803Q	Q303	8-729-216-22	TRANSISTOR	2SA1162
D409	8-719-200-36	DIODE	E10QSO	IC402	8-759-978-07	IC	BU-3786F	Q304	8-729-100-66	TRANSISTOR	2SC1623
D410	8-719-200-36	DIODE	E10QSO	IC403	8-759-804-72	IC	LB1631M	Q305	8-729-216-22	TRANSISTOR	2SA1162
D501	8-719-938-75	DIODE	SB05-05CP	IC501	8-759-013-22	IC	LM358MR	Q306	8-729-100-66	TRANSISTOR	2SC1623
D502	8-719-938-75	DIODE	SB05-05CP	IC502	8-759-945-17	IC	MB3775PF	Q307	8-729-920-74	TRANSISTOR	2SC2412K
D503	8-719-104-34	DIODE	1S2836								

CM-13 BOARD
(CONDUCTOR SIDE)

CM-13 BOARD





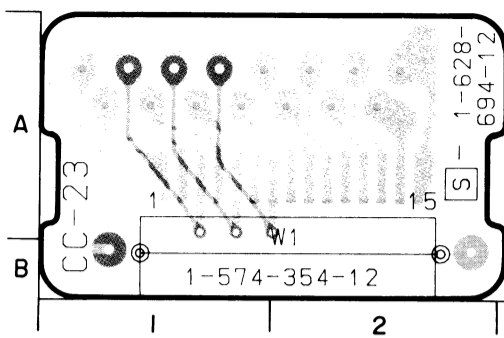


• SIGNAL PATH

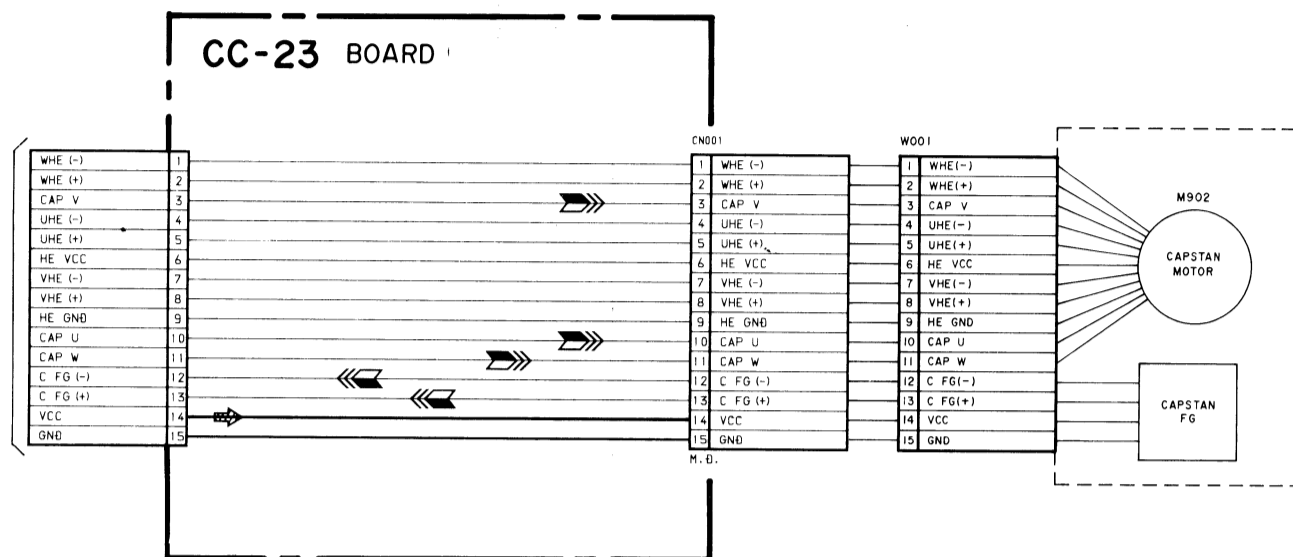
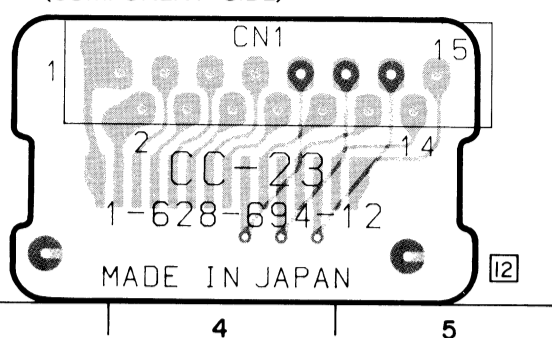
	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			

CC-23 (SIGNAL INTERMEDIATION), PC-50 (PCM/AFM AUDIO) PRINTED WIRING BOARDS
—Ref. No. CC-23 Board: 3000 series, PC-50 Board: 4000 series—


CC-23 BOARD
(CONDUCTOR SIDE)



CC-23 BOARD
(COMPONENT SIDE)



- **Signal path**

	REC	REC/PB	PB
Capstan servo (speed and phase)			

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

DIODE

D401	8-719-400-18	DIODE	MA152WK
D501	8-719-104-34	DIODE	1S2836
D502	8-719-400-18	DIODE	MA152WK
D503	8-719-800-76	DIODE	1S5226
D610	8-719-104-34	DIODE	1S2836

IC

IC401	8-752-334-42	IC	CXD2106Q
IC501	8-759-100-93	IC	UPC393G2
IC602	8-759-111-56	IC	UPC4572G2
IC603	8-759-009-07	IC	MC14053BF
IC604	8-759-111-56	IC	UPC4572G2

D702	8-719-400-18	DIODE	MA152WK
D703	8-713-300-88	DIODE	1T33C-01
D704	8-719-104-34	DIODE	1S2836
D850	8-719-104-34	DIODE	1S2836
D851	8-719-800-76	DIODE	1S5226

IC605	8-759-009-06	IC	MC14052BF
IC606	8-759-111-56	IC	UPC4572G2
IC607	8-759-111-56	IC	UPC4572G2
IC608	8-759-009-07	IC	MC14053BF
IC609	8-759-009-07	IC	MC14053BF

D852 8-719-800-76 DIODE 1SS226

IC610	8-759-009-06	IC MC14052BF
IC611	8-759-009-06	IC MC14052BF

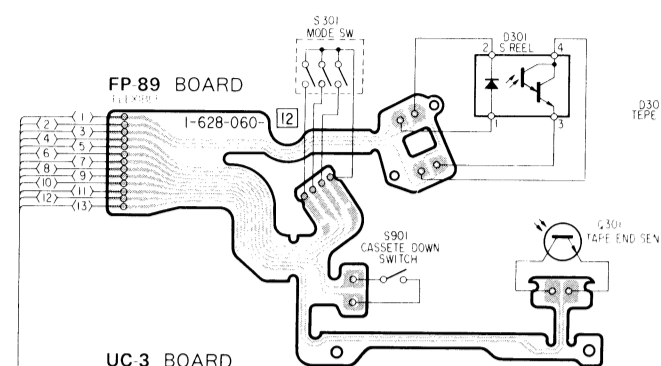
UC-3 (SIGNAL INTERMEDIATION), FP-89, FP-90 (SENSOR)
—Ref. No. UC-3, FP-89, FP-90 Boards: 3000 series—

DIODE

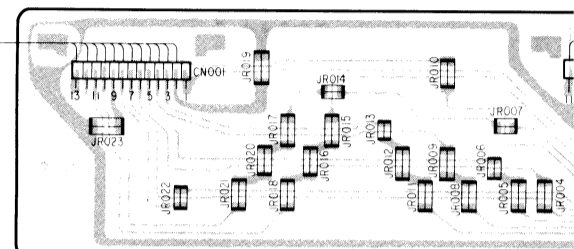
D301 8-719-820-44 PHOTO COUPLER TLP907-0

TRANSISTOR

Q301 8-729-906-48 TRANSISTOR EE-TP109

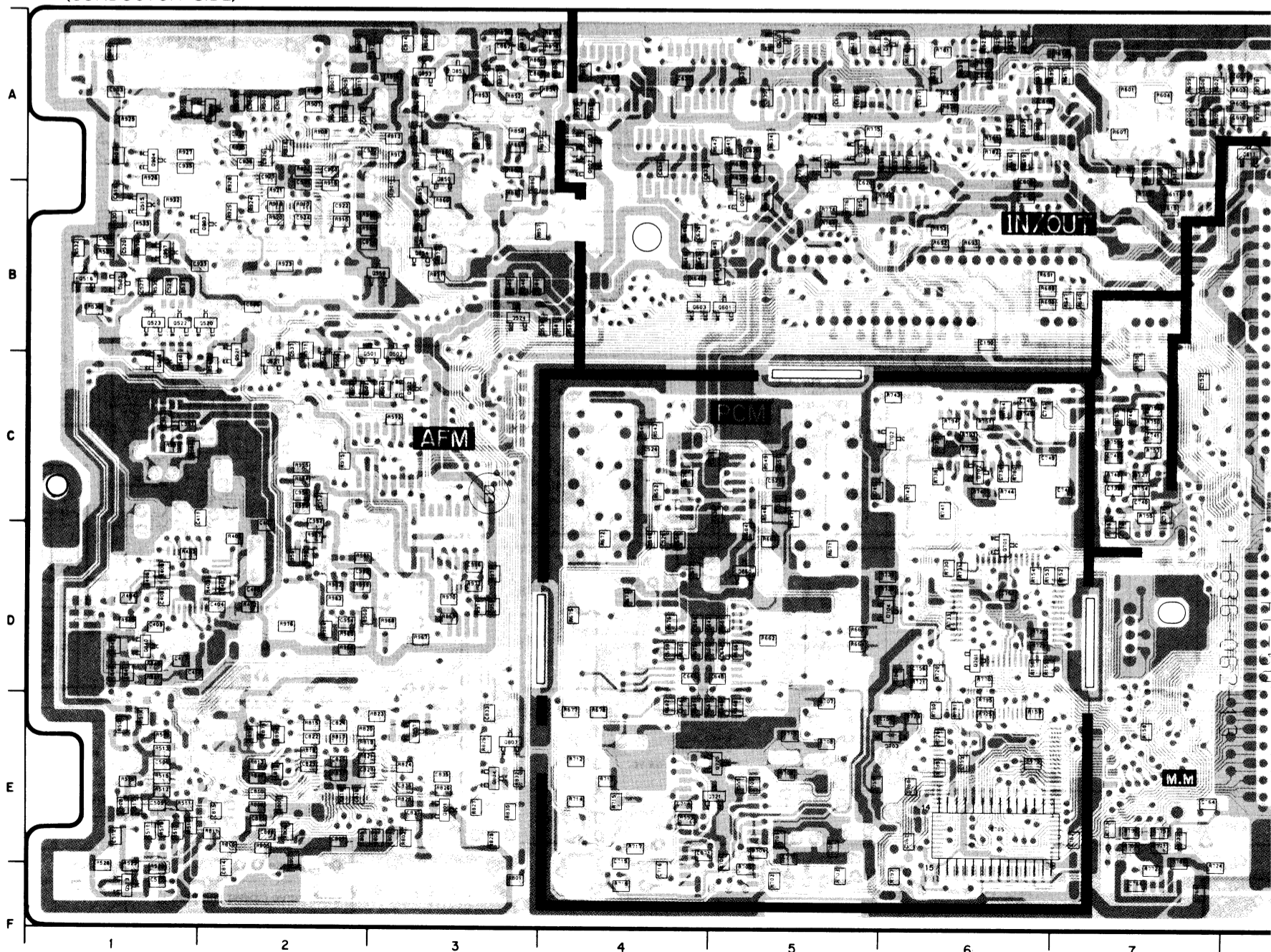


UC-3 BOARD

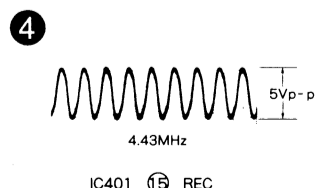
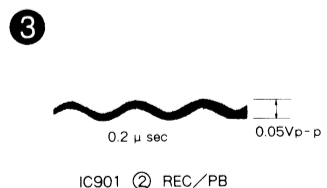
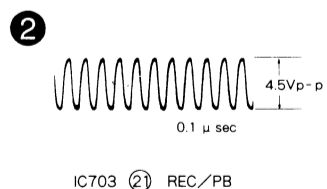
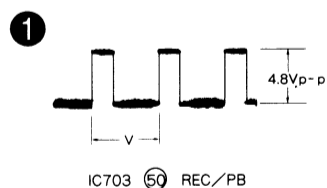


IC612	8-759-009-07	IC	MC14053BF	
IC614	8-759-822-92	IC	LA7451M	
IC615	8-759-009-06	IC	MC14052BF	Q501
IC701	8-752-322-57	IC	CXD1077M	Q502
IC703	8-752-332-46	IC	CXD1208Q	Q503
				Q504
IC704	8-759-009-51	IC	MC14538BF	Q505
IC705	8-759-927-98	IC	MB8464-15LL PF	
IC707	8-759-502-14	IC	CF79050PV	Q506
IC708	8-752-010-20	IC	CX20102	Q508
IC709	8-759-908-15	IC	TL431CLP	Q509
				Q511
IC801	8-752-033-01	IC	CXA1237AR	Q512
IC850	8-759-111-56	IC	UPC4572G2	
IC901	8-752-033-01	IC	CXA1237AR	Q514
IC902	8-759-009-06	IC	MC14052BF	Q515
IC903	8-759-009-06	IC	MC14052BF	Q516
				Q517
IC904	8-759-111-56	IC	UPC4572G2	Q518
IC905	8-759-111-56	IC	UPC4572G2	
IC906	8-759-111-56	IC	UPC4572G2	

PC-50 BOARD
(CONDUCTOR SIDE)



PC-50 BOARD

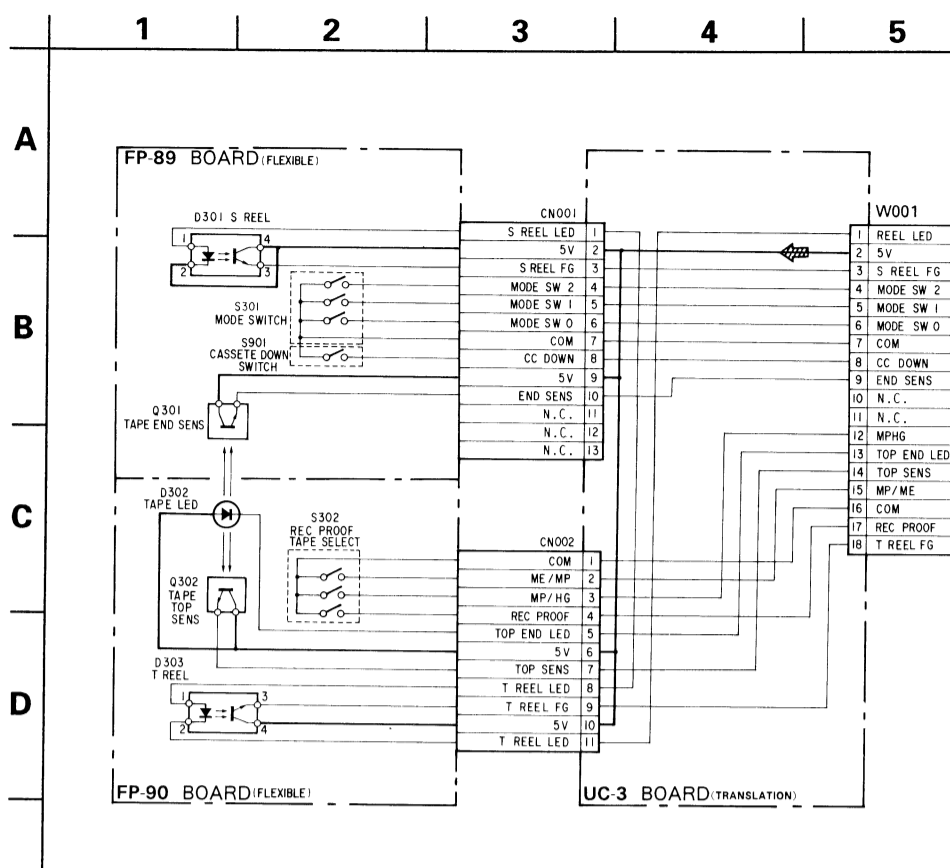
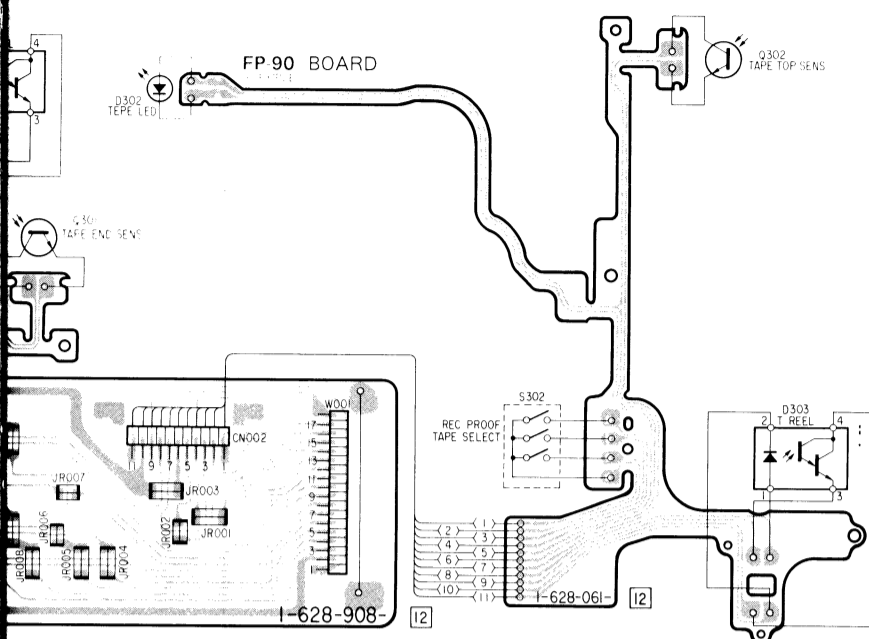


DIODE

D302 8-719-820-44 PHOTO COUPLER TLP907-0
D303 8-719-940-81 DIODE GL452S

TRANSISTOR

Q302 8-729-906-48 TRANSISTOR EE-TP109

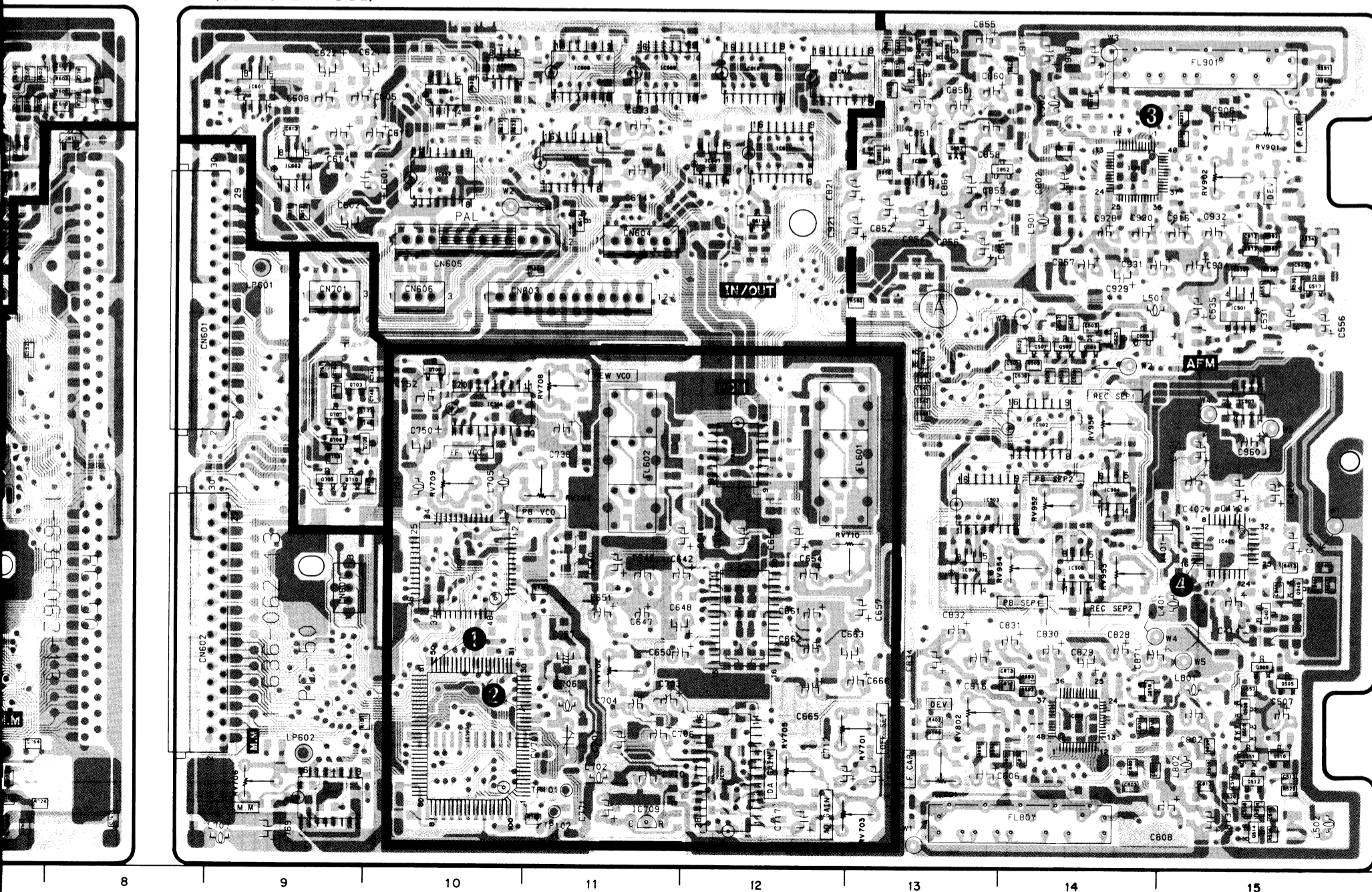


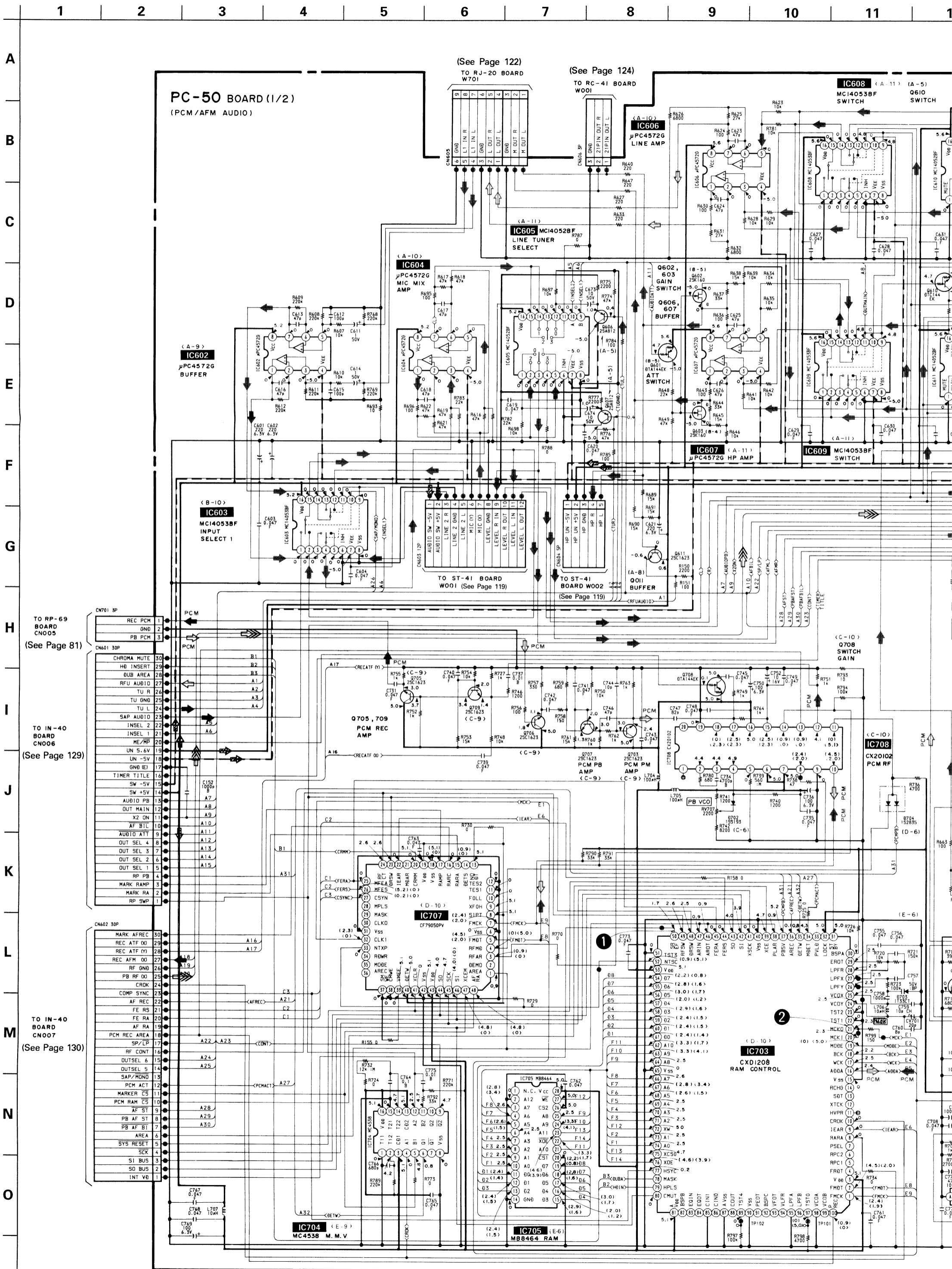
TO CM-13 BOARD
CN-405
(See Page 95)

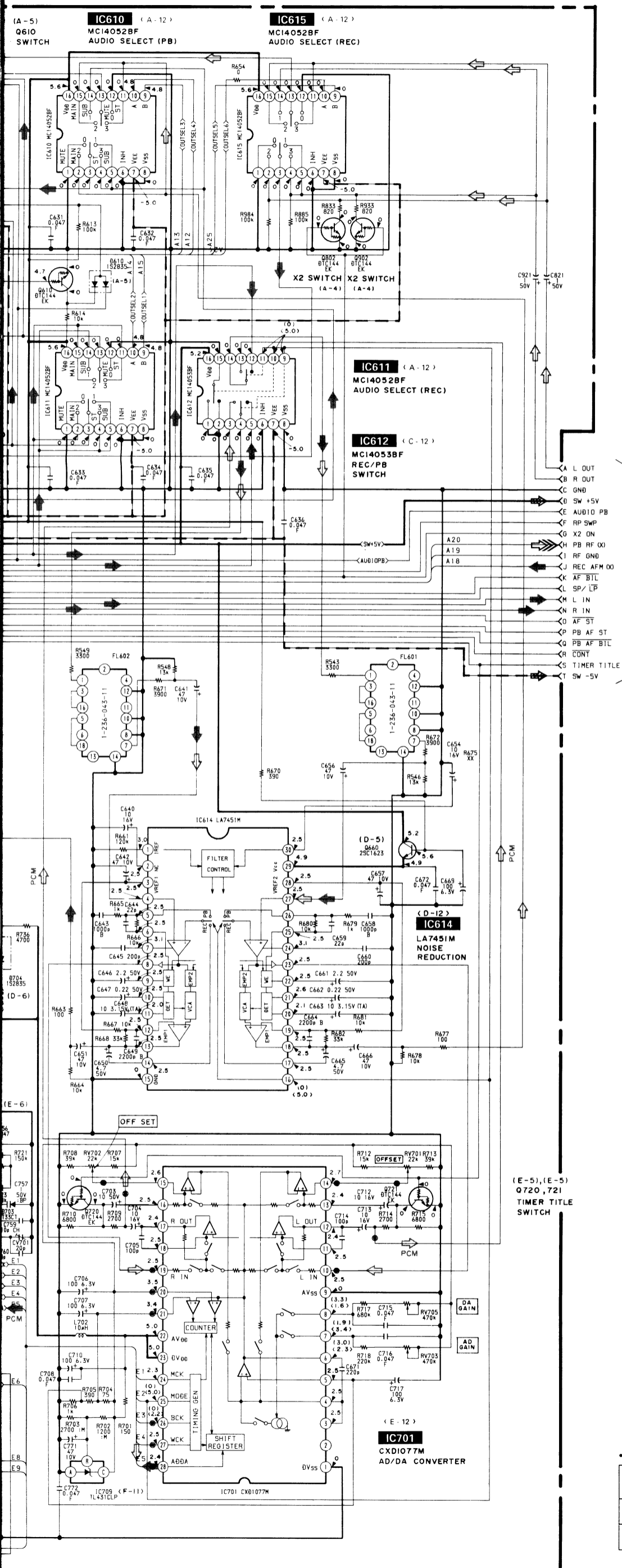
TRANSISTOR

Q501	8-729-100-66	TRANSISTOR	2SC1623	Q520	8-729-901-01	TRANSISTOR	DTC144EK	Q705	8-729-100-66	TRANSISTOR	2SC1623	Q856	8-729-100-66	TRANSISTOR	2SC1623
Q502	8-729-901-01	TRANSISTOR	DTC144EK	Q521	8-729-901-06	TRANSISTOR	DTA144EK	Q706	8-729-100-66	TRANSISTOR	2SC1623	Q901	8-729-901-01	TRANSISTOR	DTC144EK
Q503	8-729-100-66	TRANSISTOR	2SC1623	Q522	8-729-901-01	TRANSISTOR	DTC144EK	Q707	8-729-100-66	TRANSISTOR	2SC1623	Q902	8-729-901-01	TRANSISTOR	DTC144EK
Q504	8-729-902-XX	TRANSISTOR	DTC114TK	Q523	8-729-901-01	TRANSISTOR	DTC144EK	Q708	8-729-901-06	TRANSISTOR	DTA144EK	Q940	8-729-100-66	TRANSISTOR	2SC1623
Q505	8-729-901-01	TRANSISTOR	DTC144EK	Q524	8-729-100-66	TRANSISTOR	2SC1623	Q709	8-729-100-66	TRANSISTOR	2SC1623				
Q506	8-729-216-22	TRANSISTOR	2SA1162	Q526	8-729-100-66	TRANSISTOR	2SC1623	Q720	8-729-901-01	TRANSISTOR	DTC144EK				
Q508	8-729-100-66	TRANSISTOR	2SC1623	Q601	8-729-901-06	TRANSISTOR	DTA144EK	Q721	8-729-901-01	TRANSISTOR	DTC144EK				
Q509	8-729-903-10	TRANSISTOR	FMW1	Q602	8-729-116-05	TRANSISTOR	2SK160-K5	Q801	8-729-901-01	TRANSISTOR	DTC144EK				
Q511	8-729-100-66	TRANSISTOR	2SC1623	Q603	8-729-116-05	TRANSISTOR	2SK160-K5	Q802	8-729-901-01	TRANSISTOR	DTC144EK				
Q512	8-729-100-66	TRANSISTOR	2SC1623	Q606	8-729-216-22	TRANSISTOR	2SA1162	Q840	8-729-100-66	TRANSISTOR	2SC1623				
Q514	8-729-216-22	TRANSISTOR	2SA1162	Q607	8-729-216-22	TRANSISTOR	2SA1162	Q851	8-729-902-96	TRANSISTOR	FMS1				
Q515	8-729-100-66	TRANSISTOR	2SC1623	Q610	8-729-901-01	TRANSISTOR	DTC144EK	Q852	8-729-904-04	TRANSISTOR	FMS2				
Q516	8-729-100-66	TRANSISTOR	2SC1623	Q611	8-729-100-66	TRANSISTOR	2SC1623	Q853	8-729-100-66	TRANSISTOR	2SC1623				
Q517	8-729-100-66	TRANSISTOR	2SC1623	Q660	8-729-100-66	TRANSISTOR	2SC1623	Q854	8-729-100-66	TRANSISTOR	2SC1623				
Q518	8-729-901-06	TRANSISTOR	DTA144EK	Q703	8-729-100-66	TRANSISTOR	2SC1623	Q855	8-729-100-66	TRANSISTOR	2SC1623				

PC-50 BOARD
(COMPONENT SIDE)







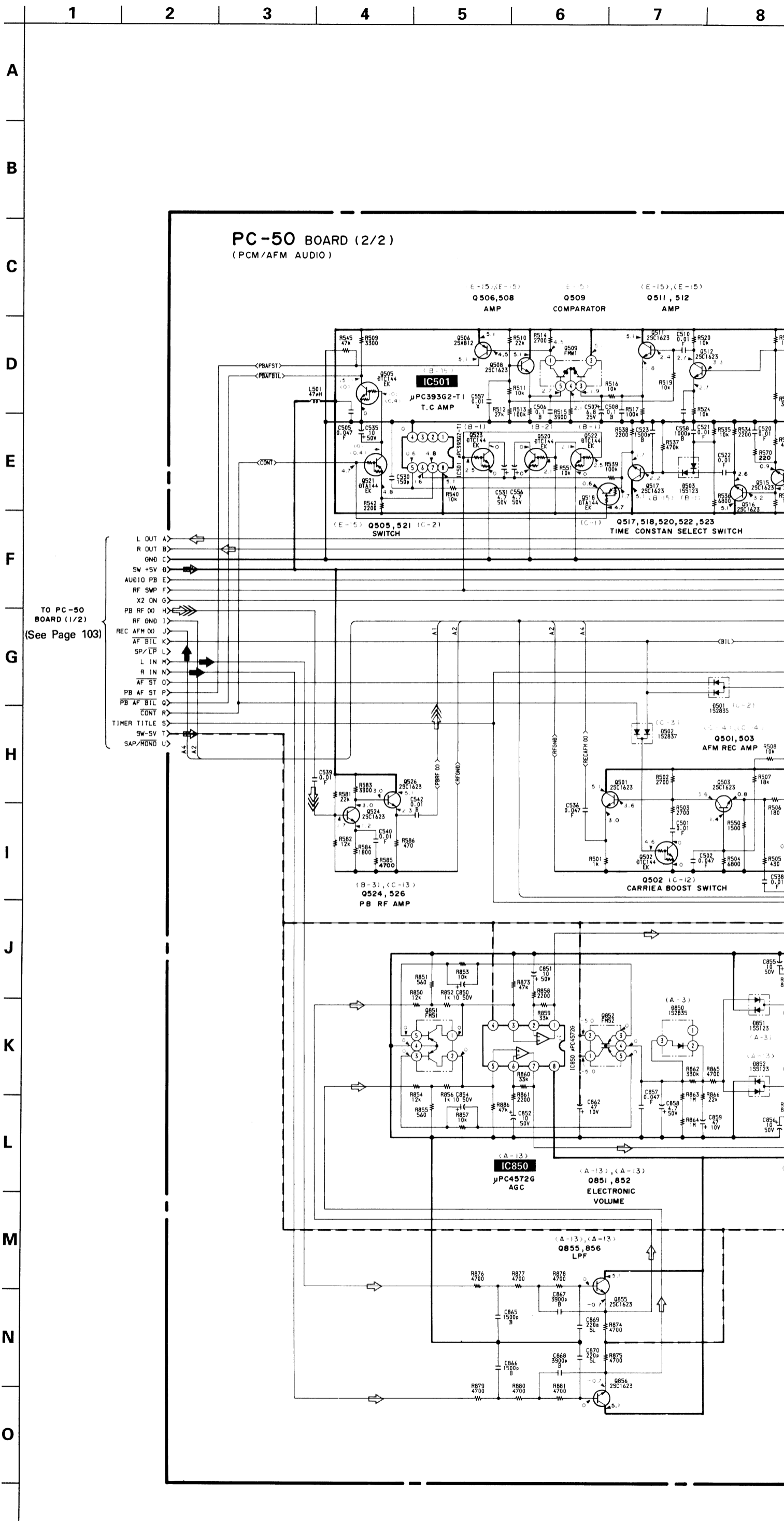
TO PC-50
BOARD (2/2)
(See Page 105)

(E-5), (E-5)
Q720, 721
TIMER TITLE
SWITCH

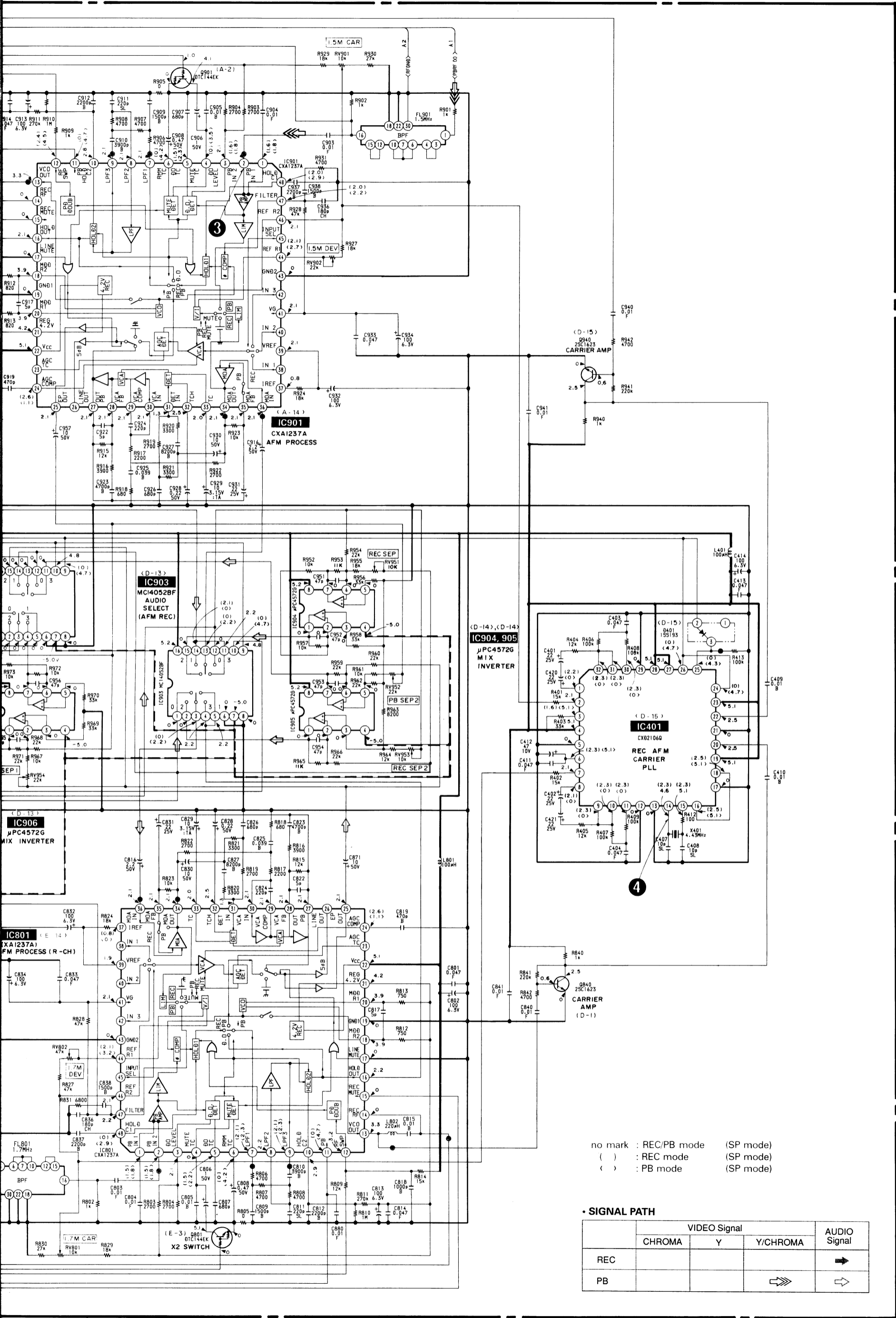
no mark	: REC/PB mode	(SP mode)
()	: REC mode	(SP mode)
()	: PB mode	(SP mode)

- **SIGNAL PATH**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				➡
PB			➡➡➡	➡







TU-100 (TUNER) PRINTED WIRING BOARD
—Ref. No. TU-100 Board: 5000 series—

Caution:

Pattern face side: Parts on the pattern face side seen from the (Conductor Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.

DIODE

D002 8-719-400-18 DIODE MA152WK
D003 8-719-200-36 DIODE E10QS04

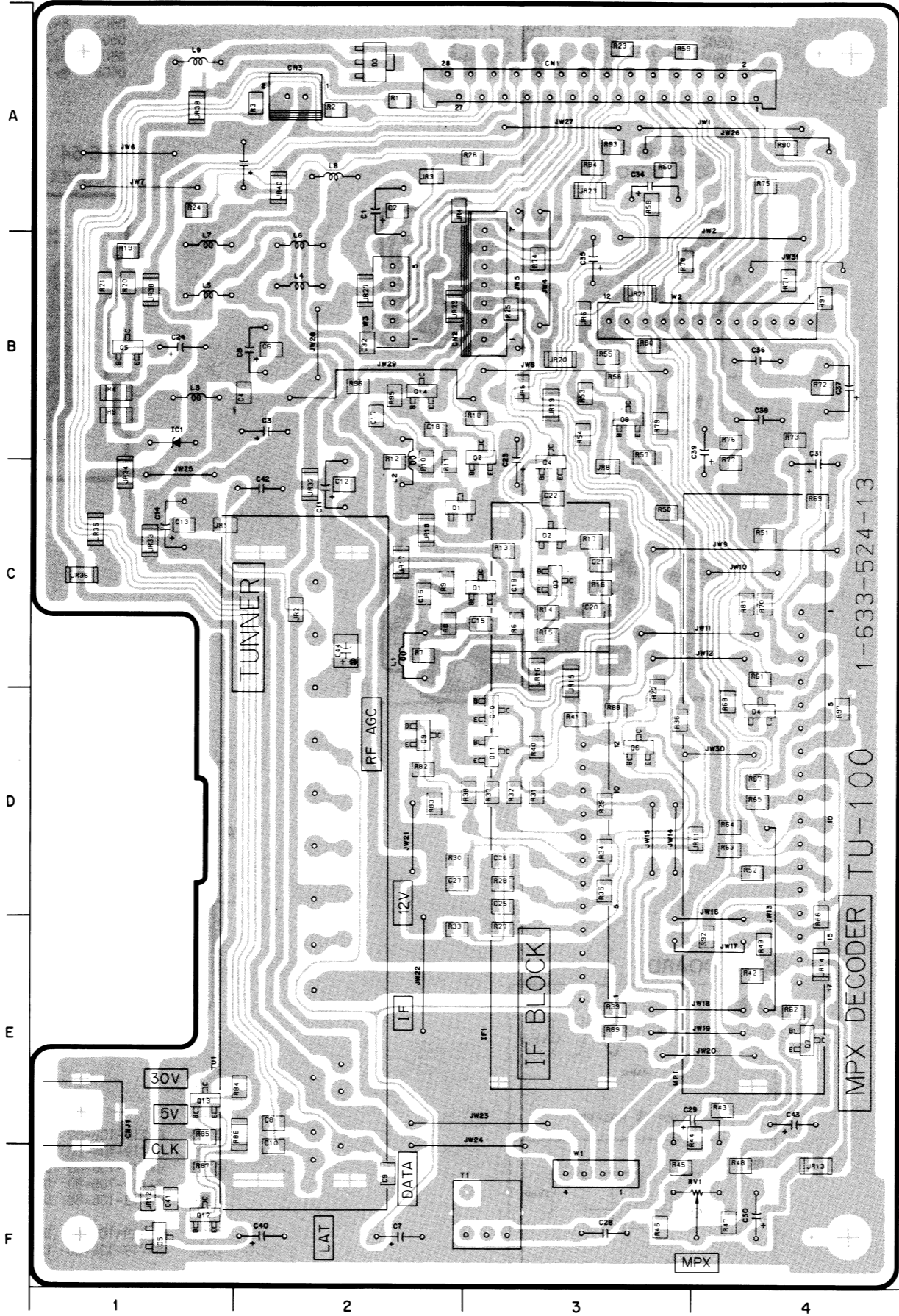
IC

IC001 8-759-157-40 IC UPC574J

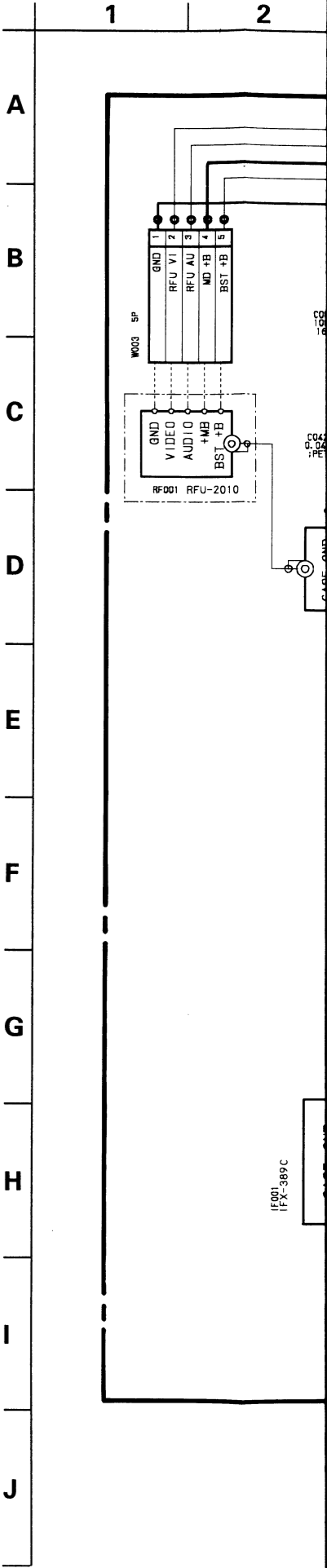
TRANSISTOR

Q001 8-729-100-66 TRANSISTOR 2SC1623
Q003 8-729-216-22 TRANSISTOR 2SA1162
Q004 8-729-100-66 TRANSISTOR 2SC1623
Q006 8-729-100-66 TRANSISTOR 2SC1623
Q010 8-729-901-01 TRANSISTOR DTC144EK
Q014 8-729-216-22 TRANSISTOR 2SA1162

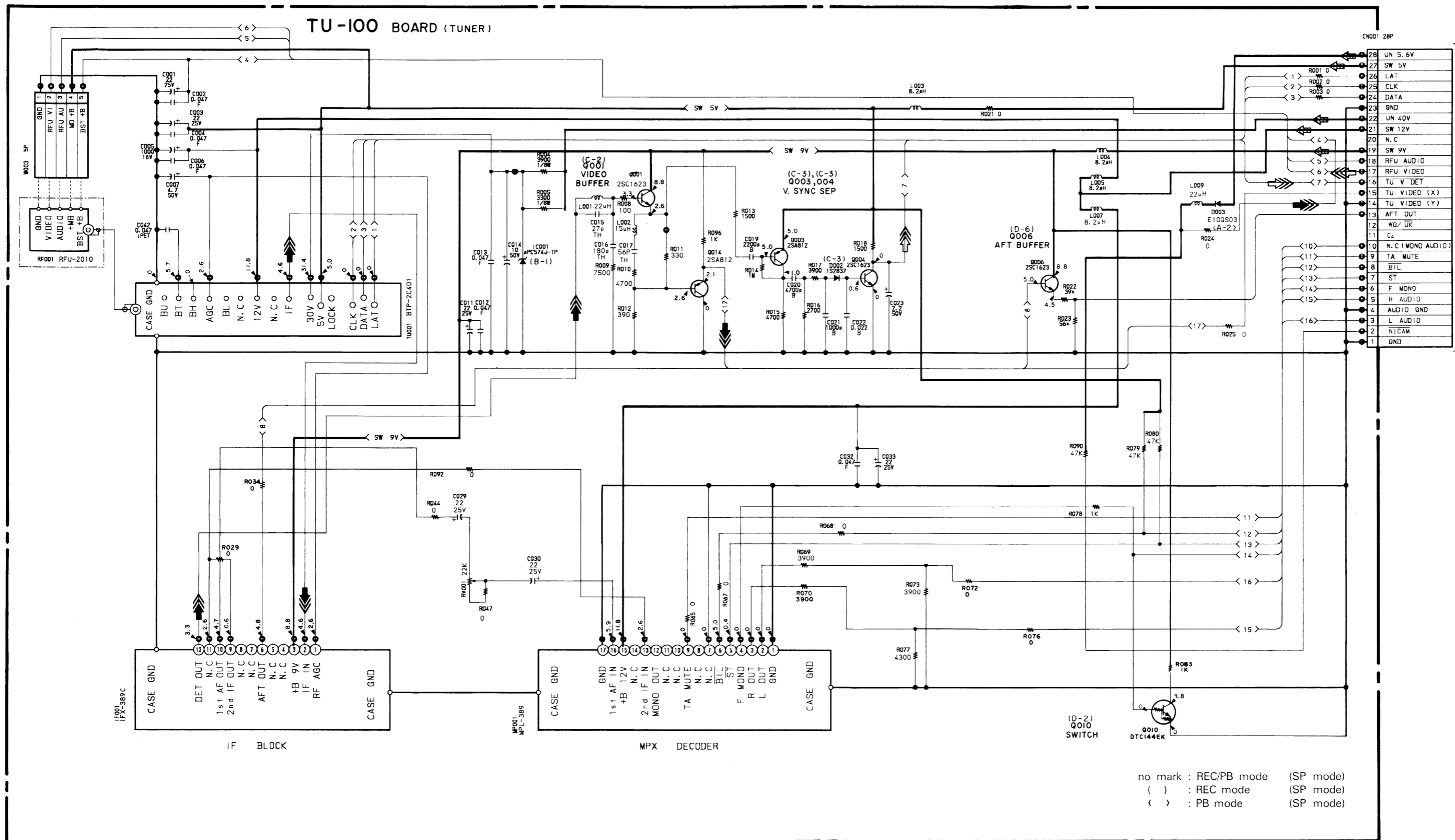
TU-100 BOARD
(CONDUCTOR SIDE)



TU-100 (TUNER) SCHEMATIC DIAG
—Ref. No. TU-100 Board: 5000 series—



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

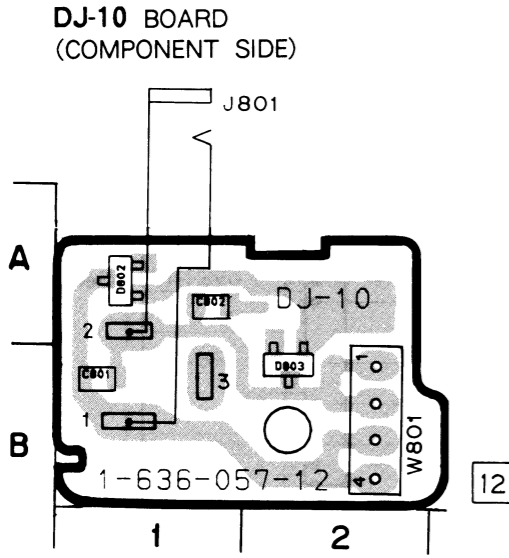


• SIGNAL PATH

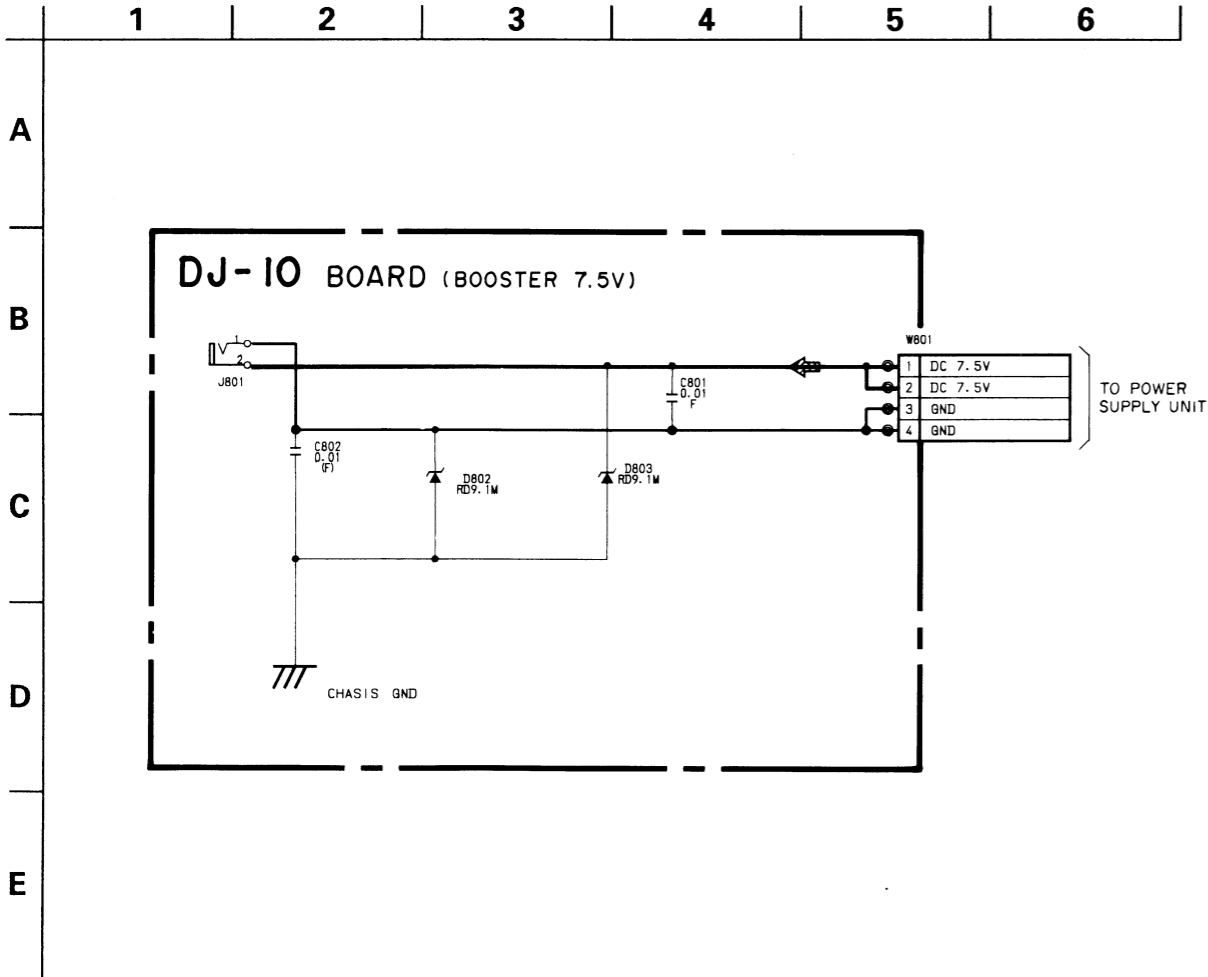
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡➡➡	➡
PB			➡➡➡	

DJ-10 (BOOSTER 7.5V) PRINTED WIRING BOARD
—Ref. No. DJ-10 Board: 1000 series—

DIODE		
D802	8-719-106-45	DIODE RD9.1M-B3
D803	8-719-106-43	DIODE RD9.1M-B1



DJ-10 (BOOSTER 7.5V) SCHEMATIC DIAGRAMS
—Ref. No. DJ-10 Board: 1000 series—



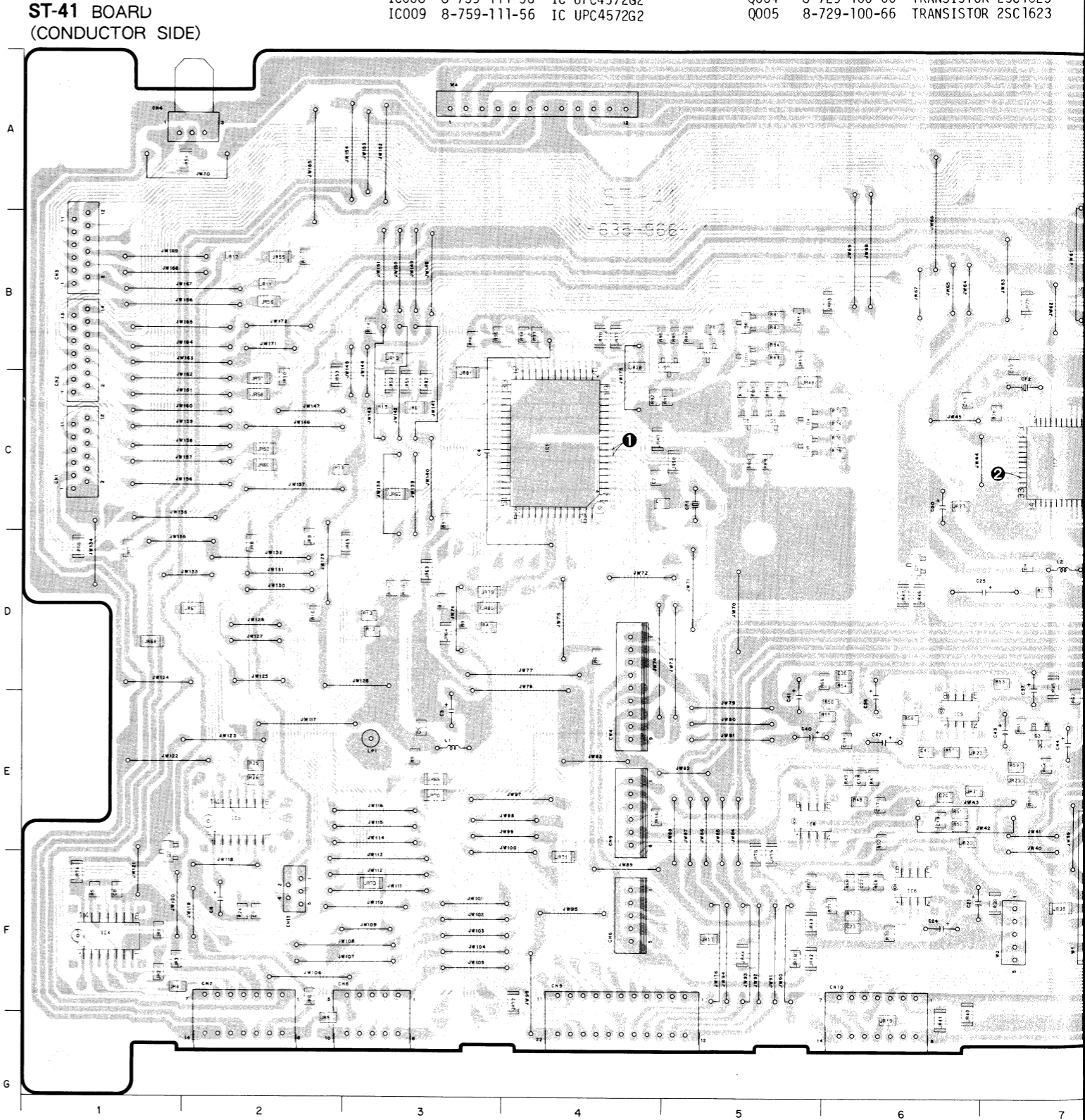
ST-41 (SYSTEM CONTROL), MC-60 (MIC/HEAD HONE TERMINAL), RS-54 (SELECTOR),
FJ-11 (V/A LINE INPUT) PRINTED WIRING BOARDS
—Ref. No. ST-41, MC-60, RS-54, FJ-11 Boards: 6000 series—

DIODE			IC		
D001	8-719-400-18	DIODE MA152WK	IC001	8-759-152-52	IC UPD-75116
D002	8-719-400-18	DIODE MA152WK	IC002	8-759-147-30	IC UPD75004GB-VSX182
D003	8-719-400-18	DIODE MA152WK	IC003	8-759-030-60	IC SDA5642
D025	8-719-911-19	DIODE 1SS119	IC004	8-759-932-54	IC MC14066BF
			IC005	8-759-990-07	IC TL1596CNS
			IC006	8-759-111-56	IC UPC4572G2
			IC007	8-759-111-56	IC UPC4572G2
			IC008	8-759-111-56	IC UPC4572G2
			IC009	8-759-111-56	IC UPC4572G2

Caution:

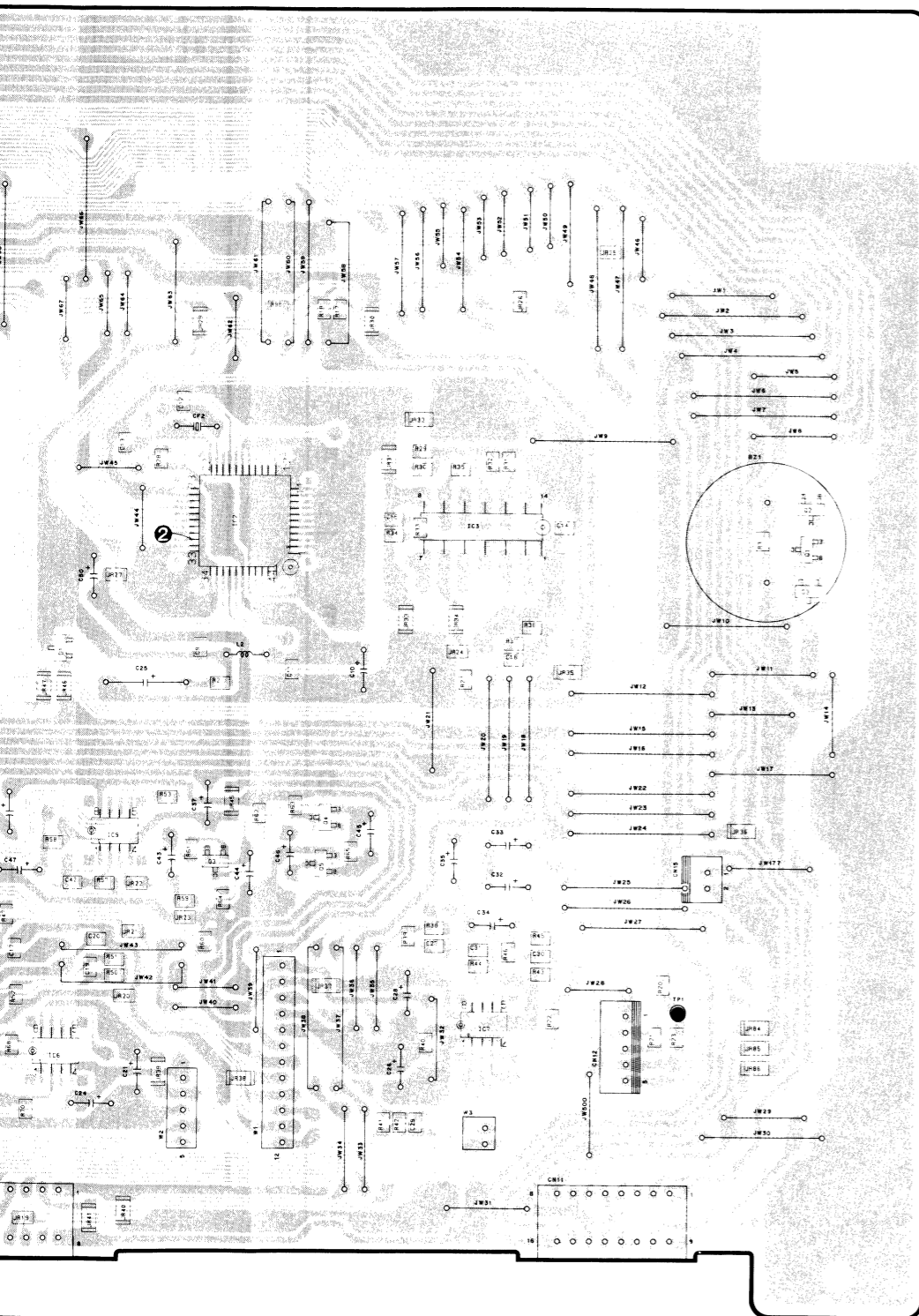
Pattern face side: (Conductor Side)	Parts on the pattern the pattern face are
Parts face side: (Component side)	Parts on the parts face parts face are indicated

TRANSISTOR		
Q001	8-729-901-04	TRANSISTOR DTA114EK
Q002	8-729-901-04	TRANSISTOR DTA114EK
Q003	8-729-100-66	TRANSISTOR 2SC1623
Q004	8-729-100-66	TRANSISTOR 2SC1623
Q005	8-729-100-66	TRANSISTOR 2SC1623



side: Parts on the parts face side seen from the
ent side) parts face are indicated.

1-04	TRANSISTOR	DTA114EK
1-04	TRANSISTOR	DTA114EK
0-66	TRANSISTOR	2SC1623
0-66	TRANSISTOR	2SC1623
0-66	TRANSISTOR	2SC1623



6 7 8 9 10

TERMINAL	SELECTOR/LINE INPUT
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
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17	17
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93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

D601	8-719-106-45	DIODE	RD9.1M-B3
D602	8-719-106-45	DIODE	RD9.1M-B3
D604	8-719-106-45	DIODE	RD9.1M-B3
D607	8-719-106-45	DIODE	RD9.1M-B3

1

4MHz

4.5Vp-p

IC001 (R) REC/PB

2

4.5Vpp

H

IC002 (S) REC/PB

D505	8-719-106-43	DIODE RD9.1M-B1
D506	8-719-106-43	DIODE RD9.1M-B1
D507	8-719-106-43	DIODE RD9.1M-B1
D508	8-719-106-43	DIODE RD9.1M-B1

1-635-060-13
RS-54

A

S503

W503

S501

R503

*Z AUDIO

JW46

JW45

JW44

AUTO STEREO

S504

S502

COLOUR SYSTEM

REMOCON MODE

DS08

DS09

DS07

DS05

1

2

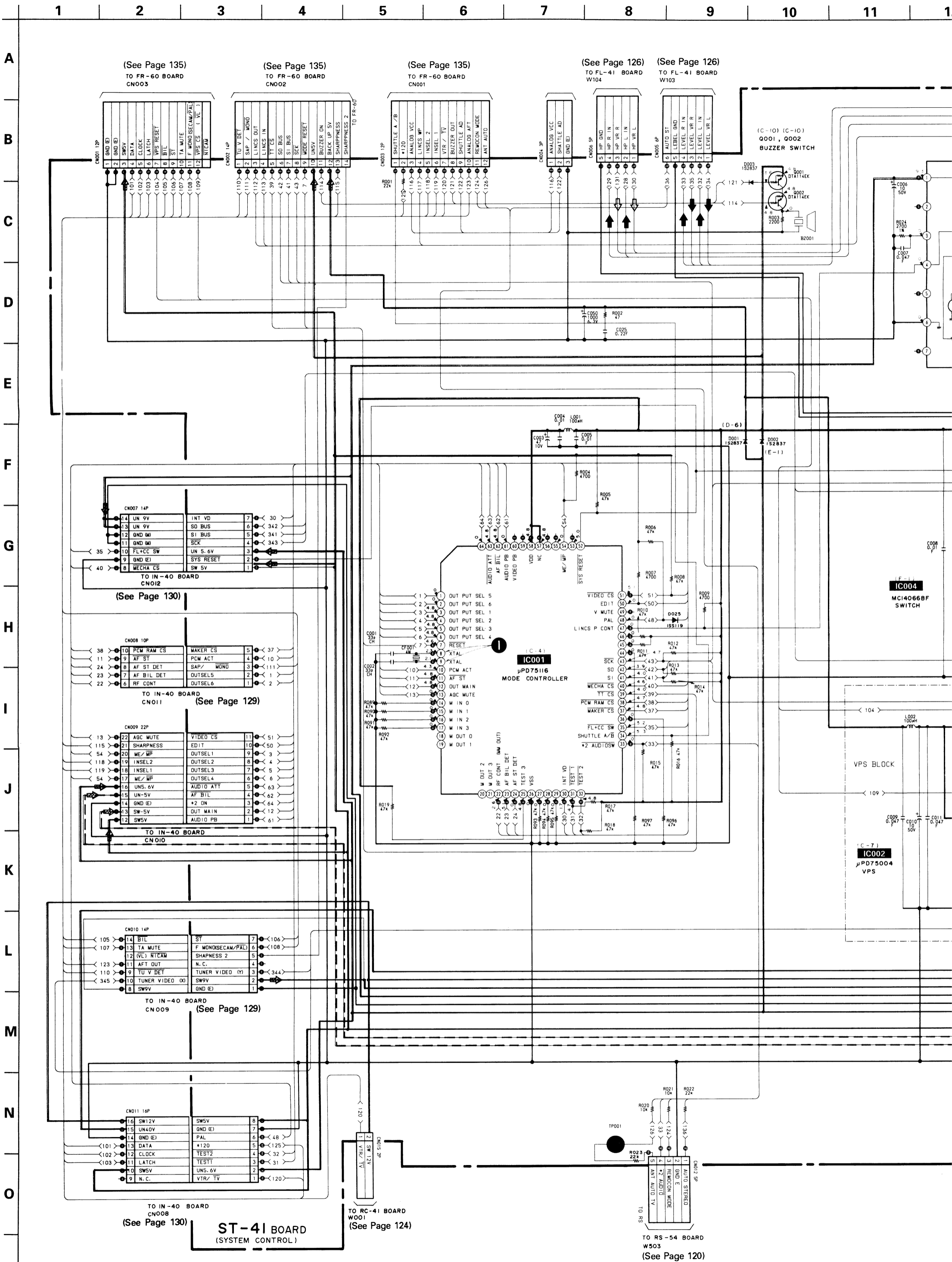
3

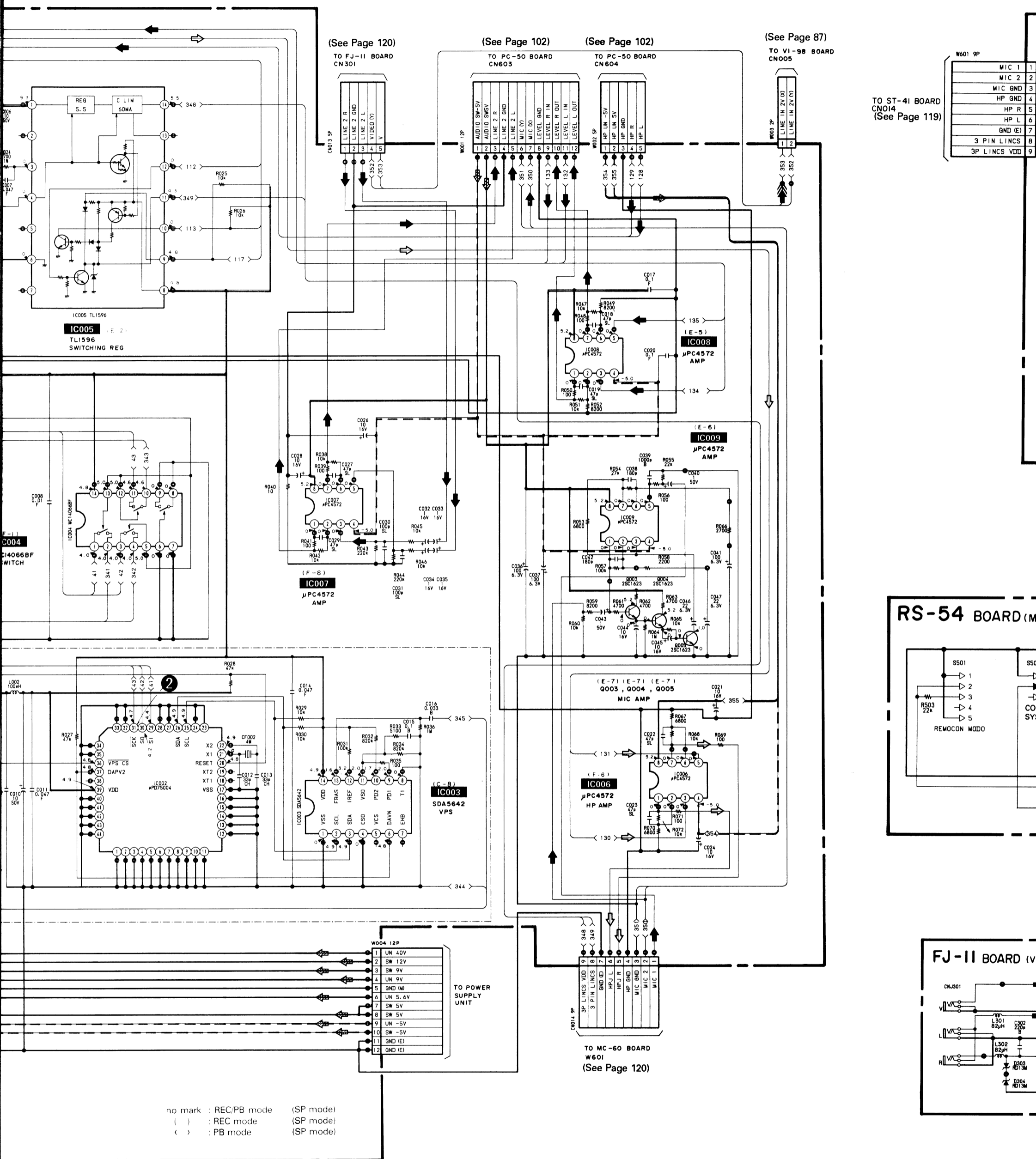
B

[illegible]

D301	8-719-106-80	D10DE	RD13M-B2
D302	8-719-106-80	D10DE	RD13M-B2
D303	8-719-106-80	D10DE	RD13M-B2
D304	8-719-106-80	D10DE	RD13M-B2
D305	8-719-106-80	D10DE	RD13M-B2
D306	8-719-106-80	D10DE	RD13M-B2
D307	8-719-106-80	D10DE	RD13M-B2

- 116 -

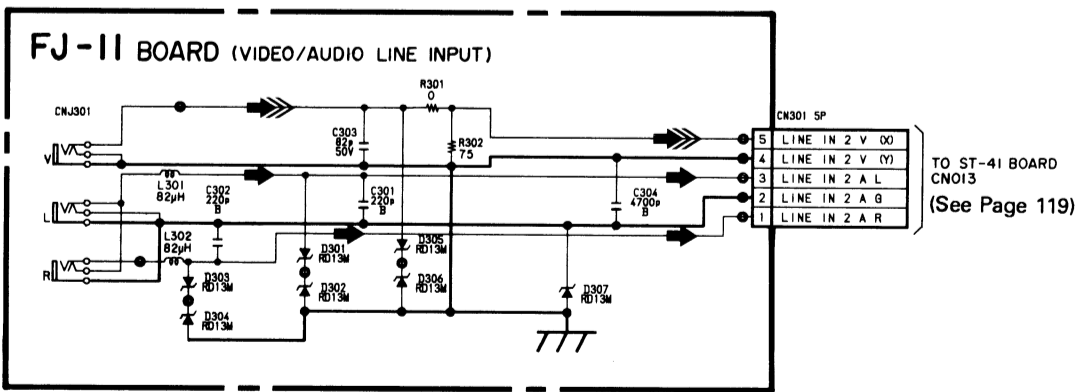
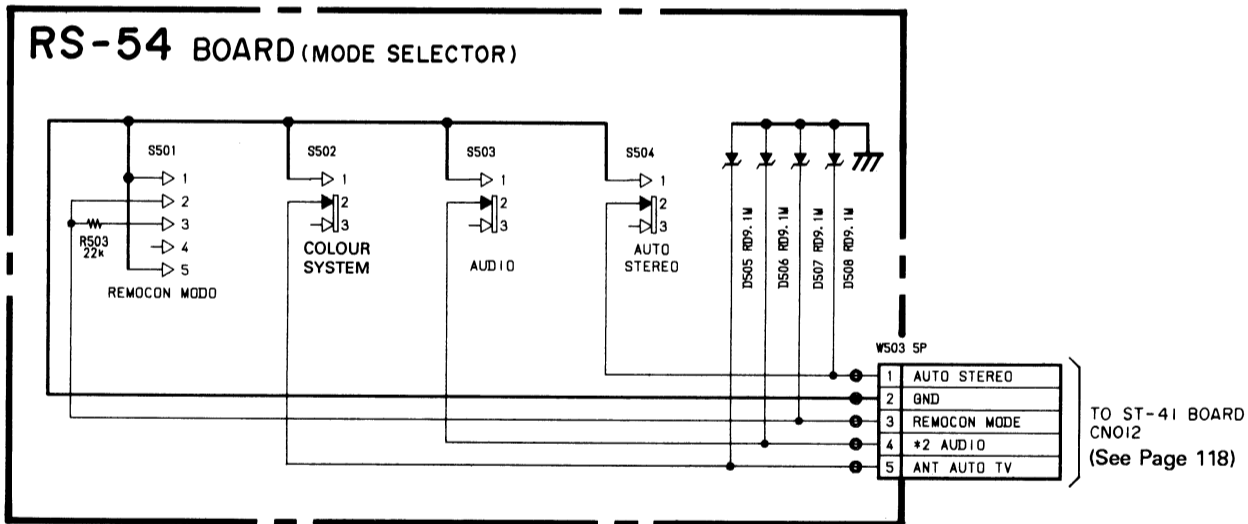
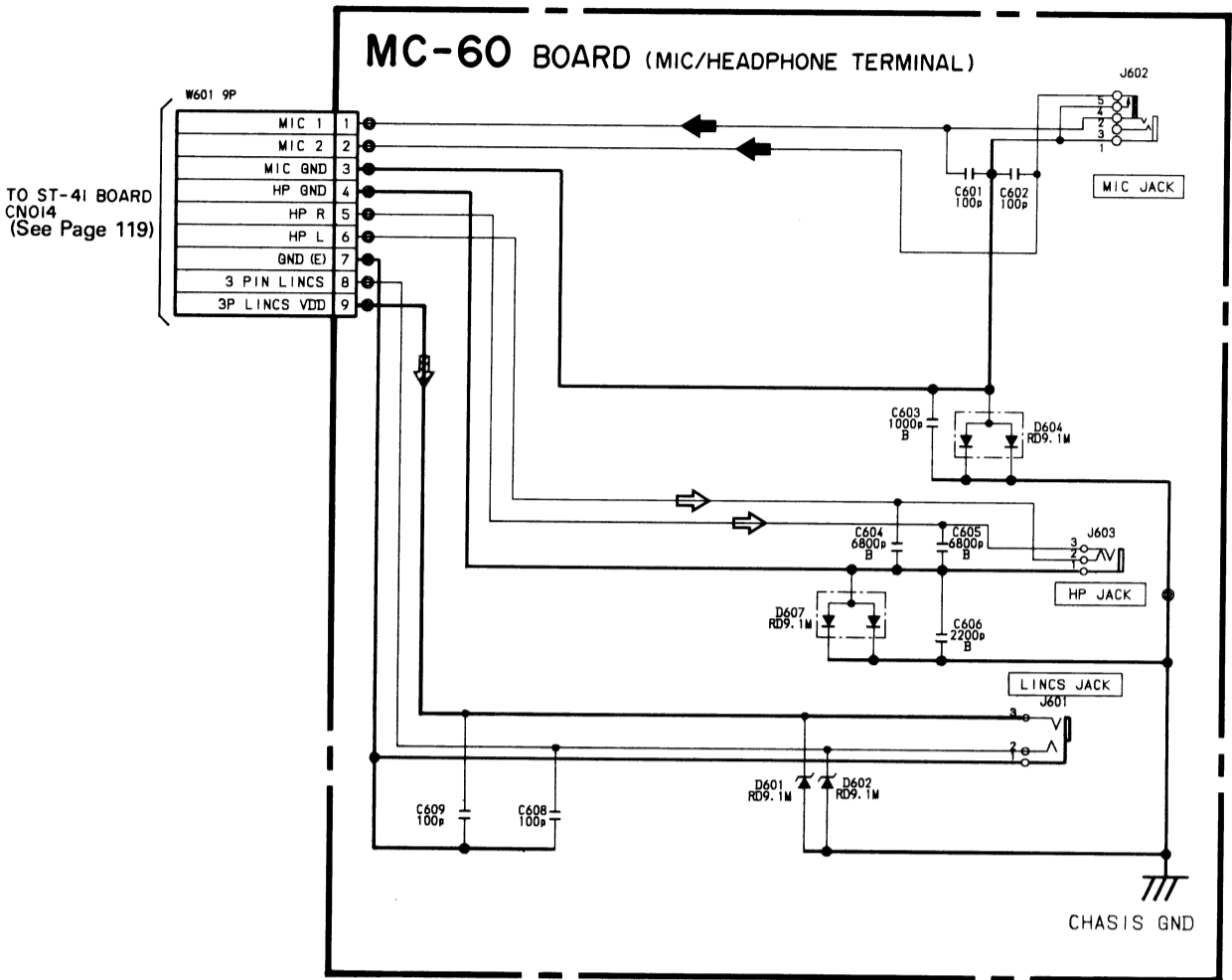
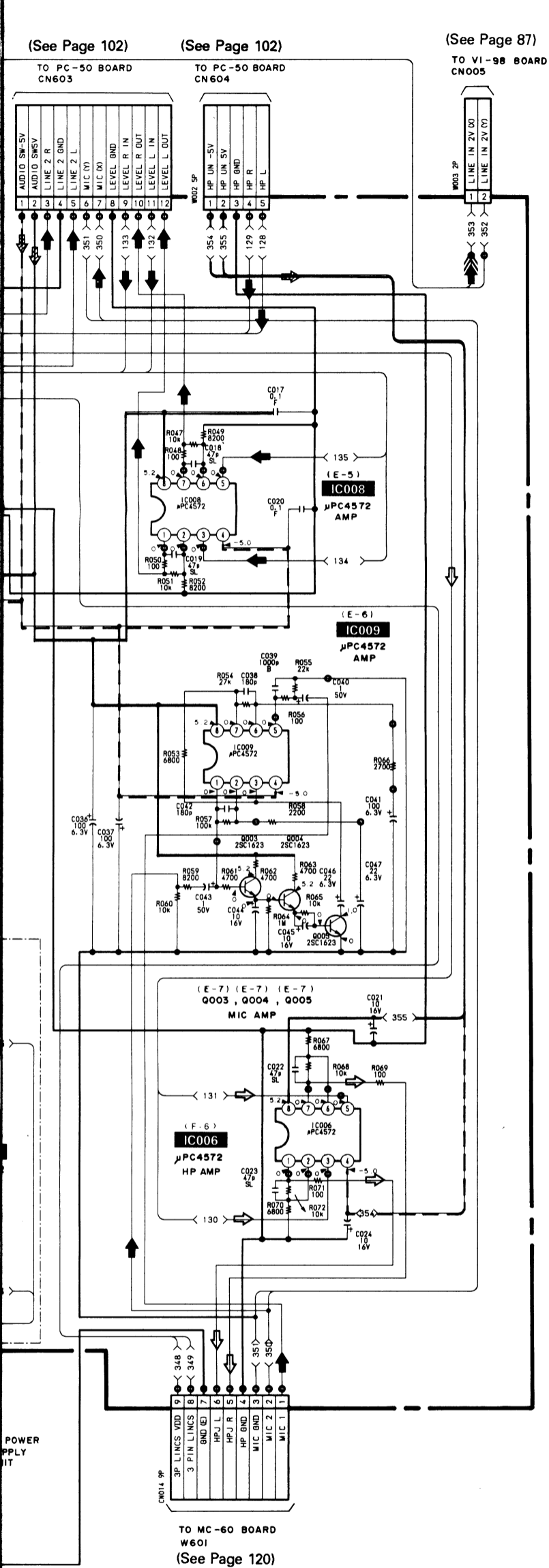




no mark : REC/PB mode (SP mode)
() : REC mode (SP mode)
() : PB mode (SP mode)

• SIGNAL

REC
PB

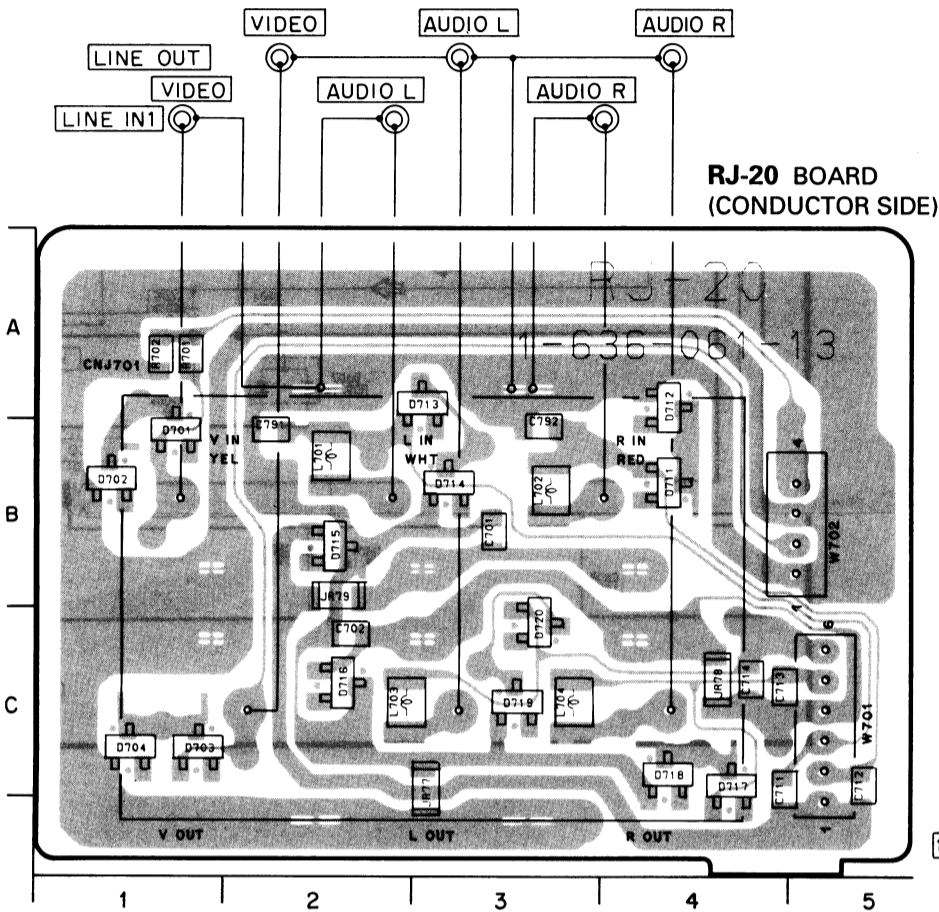


• SIGNAL PATH

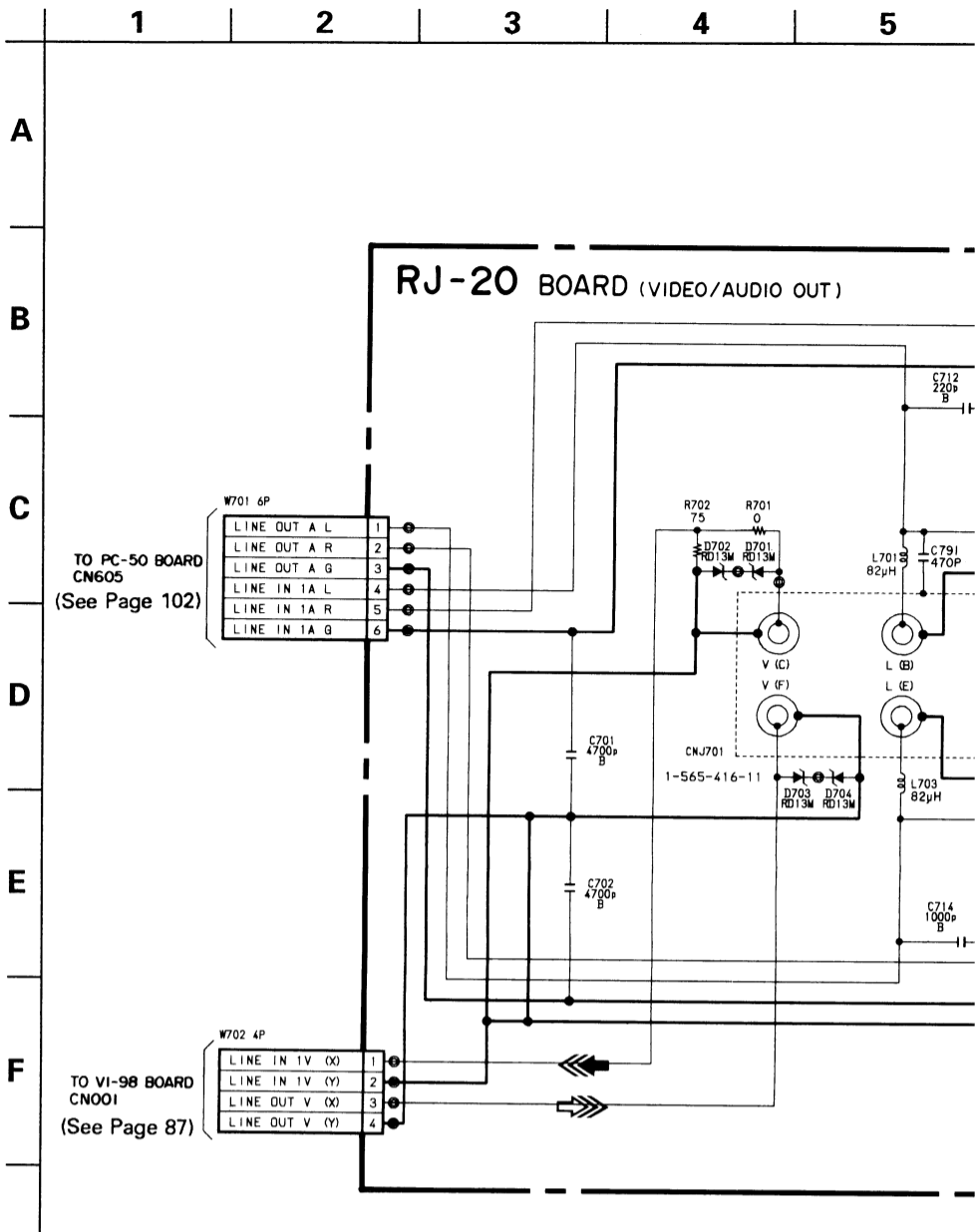
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡➡	➡
PB				➡

RJ-20 (VIDEO/AUDIO OUTPUT) PRINTED WIRING BOARD
—Ref. No. RJ-20 Board: 2000 series—

DIODE					
D701	8-719-106-80	DIODE RD13M-B2	D712	8-719-106-44	DIODE RD9.1M-B2
D702	8-719-106-80	DIODE RD13M-B2	D713	8-719-106-44	DIODE RD9.1M-B2
D703	8-719-106-80	DIODE RD13M-B2	D714	8-719-106-44	DIODE RD9.1M-B2
D704	8-719-106-80	DIODE RD13M-B2	D715	8-719-106-44	DIODE RD9.1M-B2
D711	8-719-106-44	DIODE RD9.1M-B2	D716	8-719-106-44	DIODE RD9.1M-B2
			D717	8-719-106-44	DIODE RD9.1M-B2
			D718	8-719-106-44	DIODE RD9.1M-B2
			D719	8-719-106-44	DIODE RD9.1M-B2
			D720	8-719-106-44	DIODE RD9.1M-B2

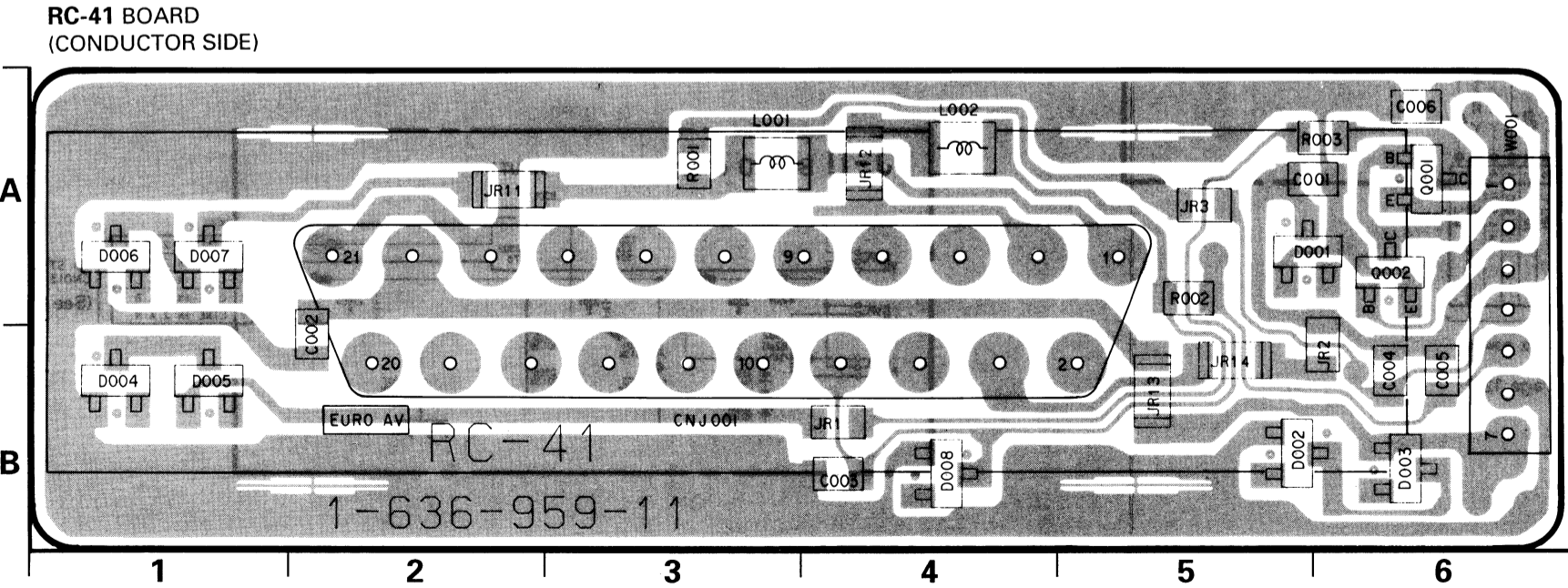


RJ-20 (VIDEO/AUDIO OUTPUT) SCHEMATIC DIAGRAM
—Ref. No. RJ-20 Board:2000 series—



RC-41 (EURO-AV OUTPUT) PRINTED WIRING BOARD
—Ref. No. RC-41 Board: 7000 series—

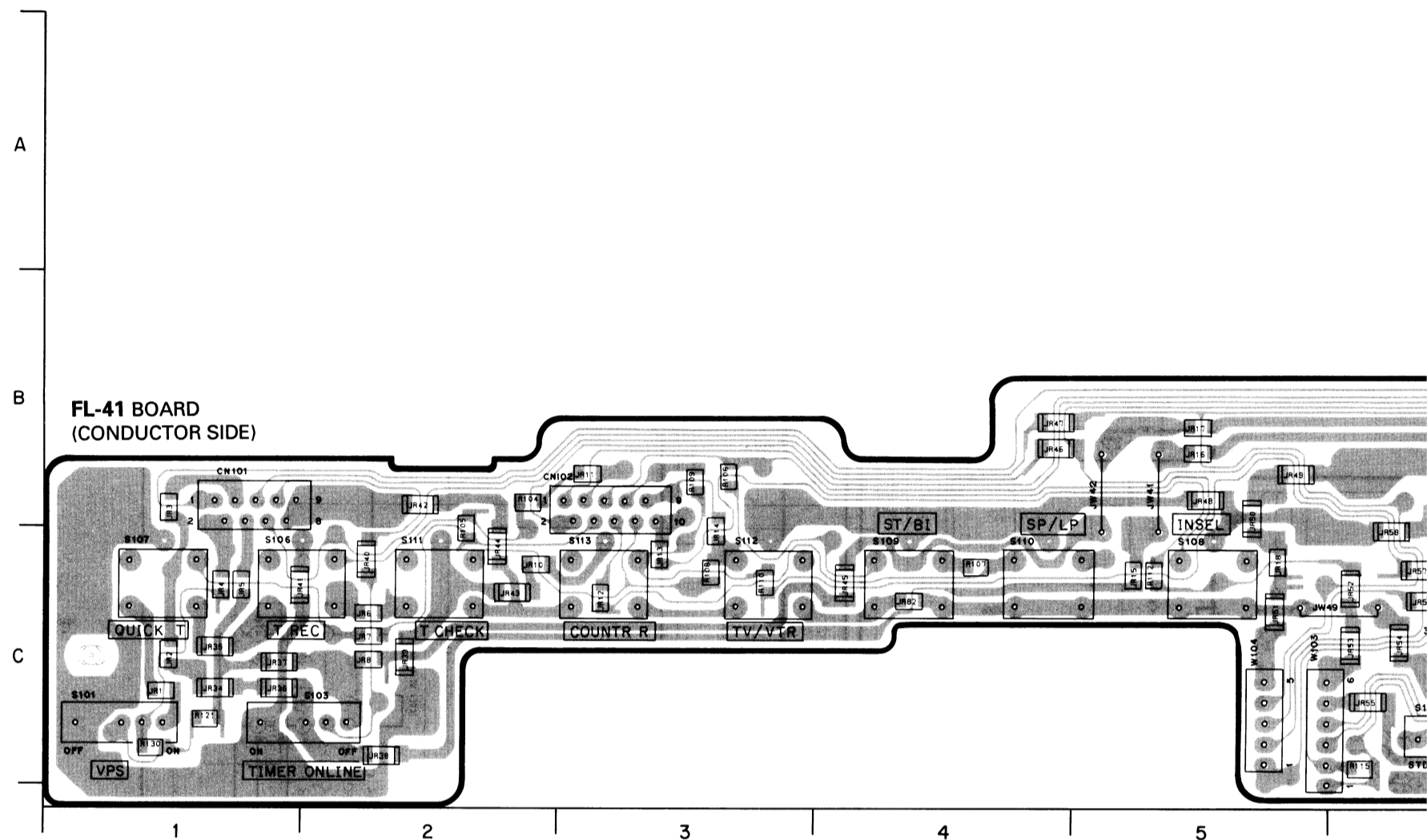
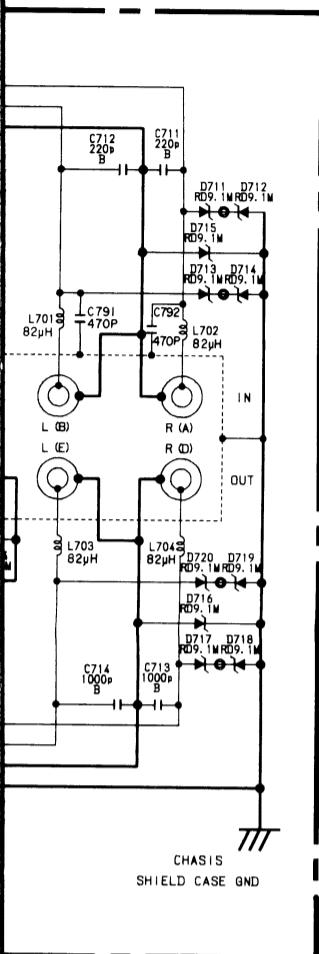
DIODE			TRANSISTOR		
D001	8-719-106-43	DIODE RD9.1M-B1	Q001	8-729-901-06	TRANSISTOR DTA144EK
D002	8-719-106-43	DIODE RD9.1M-B1	Q002	8-729-901-01	TRANSISTOR DTC144EK
D003	8-719-106-43	DIODE RD9.1M-B1			
D004	8-719-106-43	DIODE RD9.1M-B1			
D005	8-719-106-43	DIODE RD9.1M-B1			
D006	8-719-106-43	DIODE RD9.1M-B1			
D007	8-719-106-43	DIODE RD9.1M-B1			
D008	8-719-106-80	DIODE RD13M-B2			



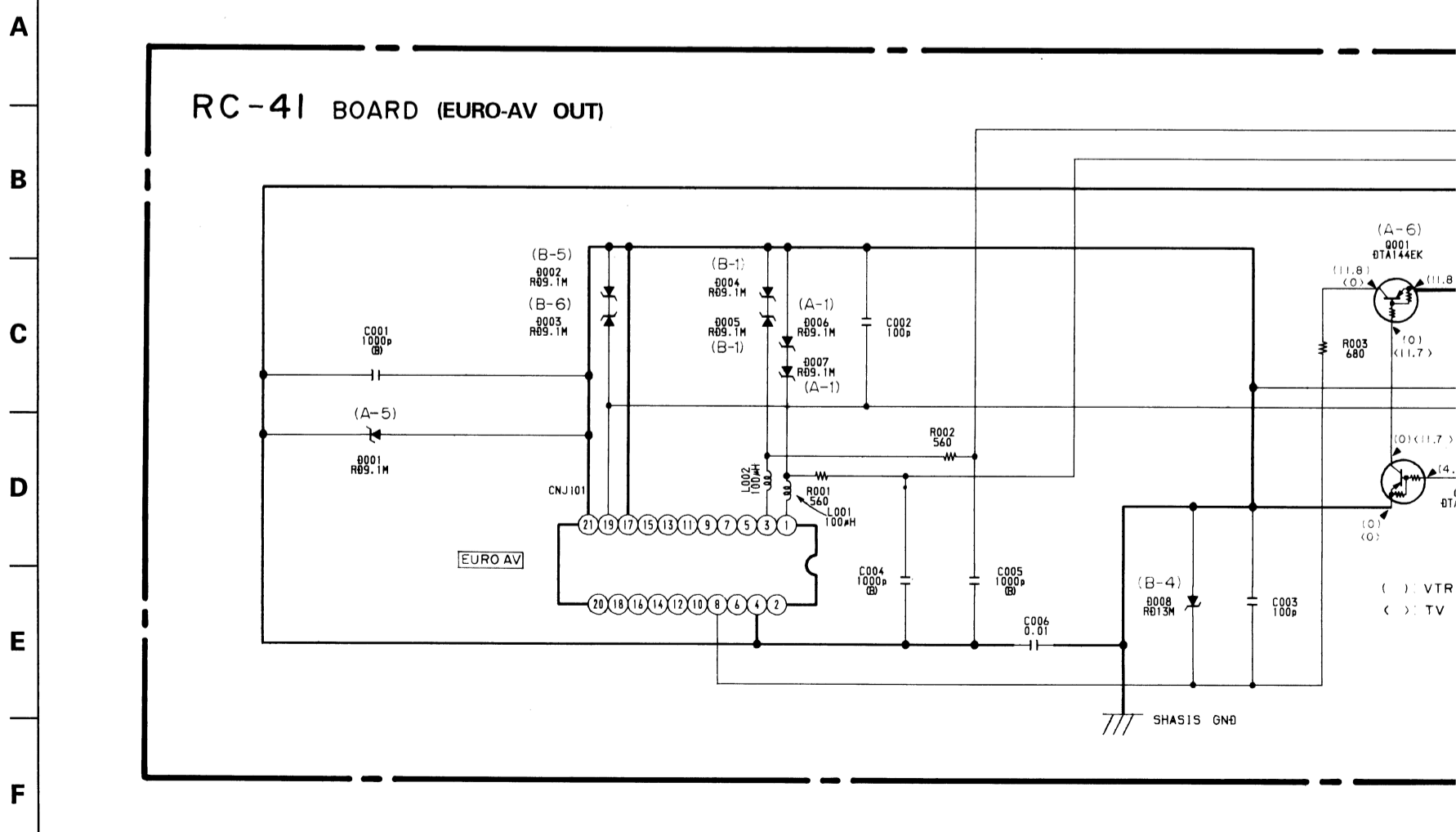
5	6
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Parts face side: Parts on the parts face side seen from the
(Component side) parts face are indicated.

D121	8-719-955-04	DIODE PY5504S-1
D122	8-719-955-04	DIODE PY5504S-1

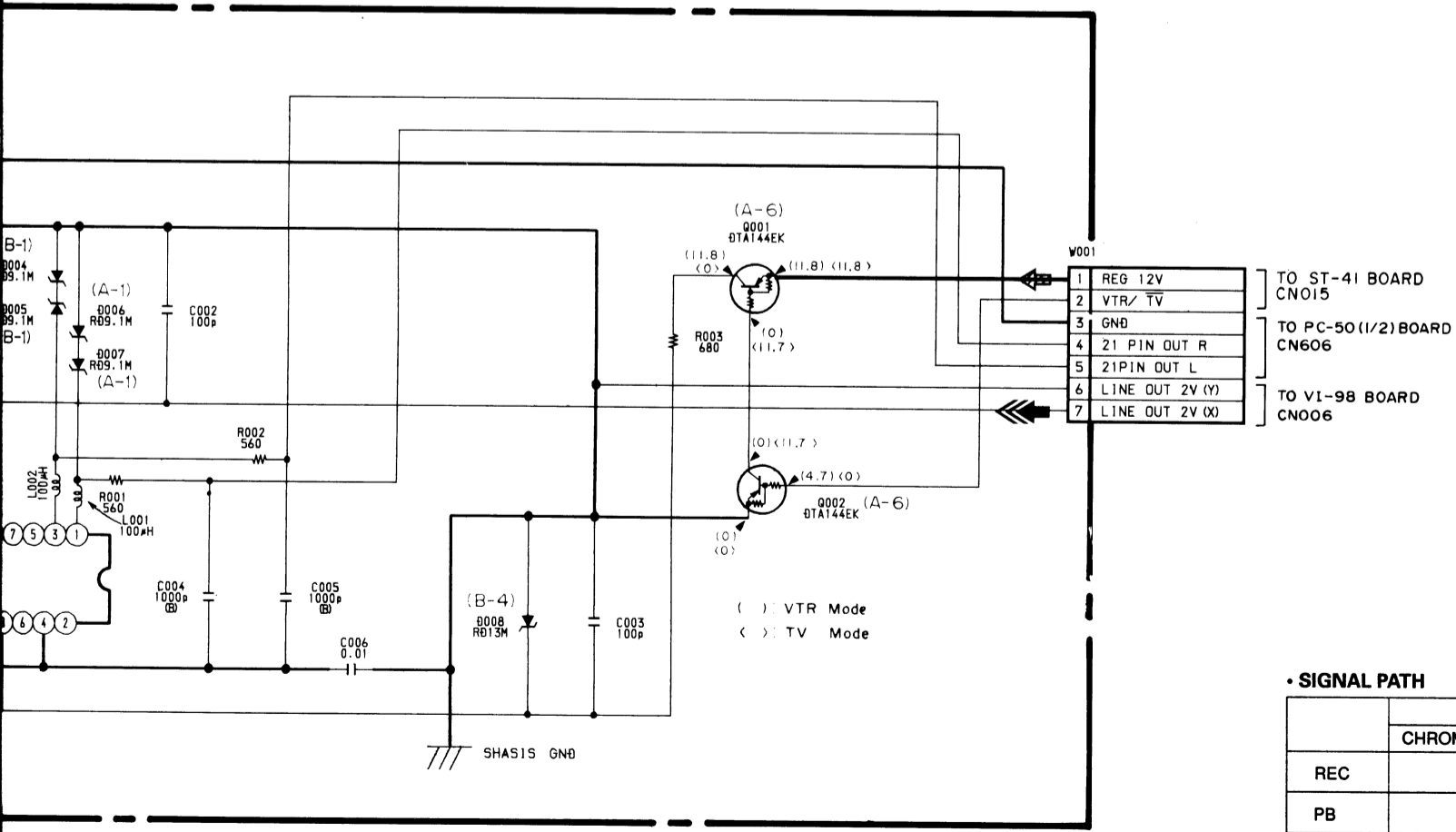
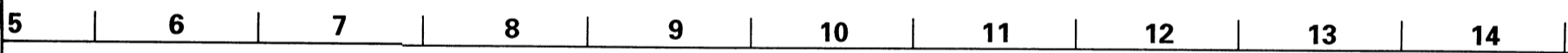
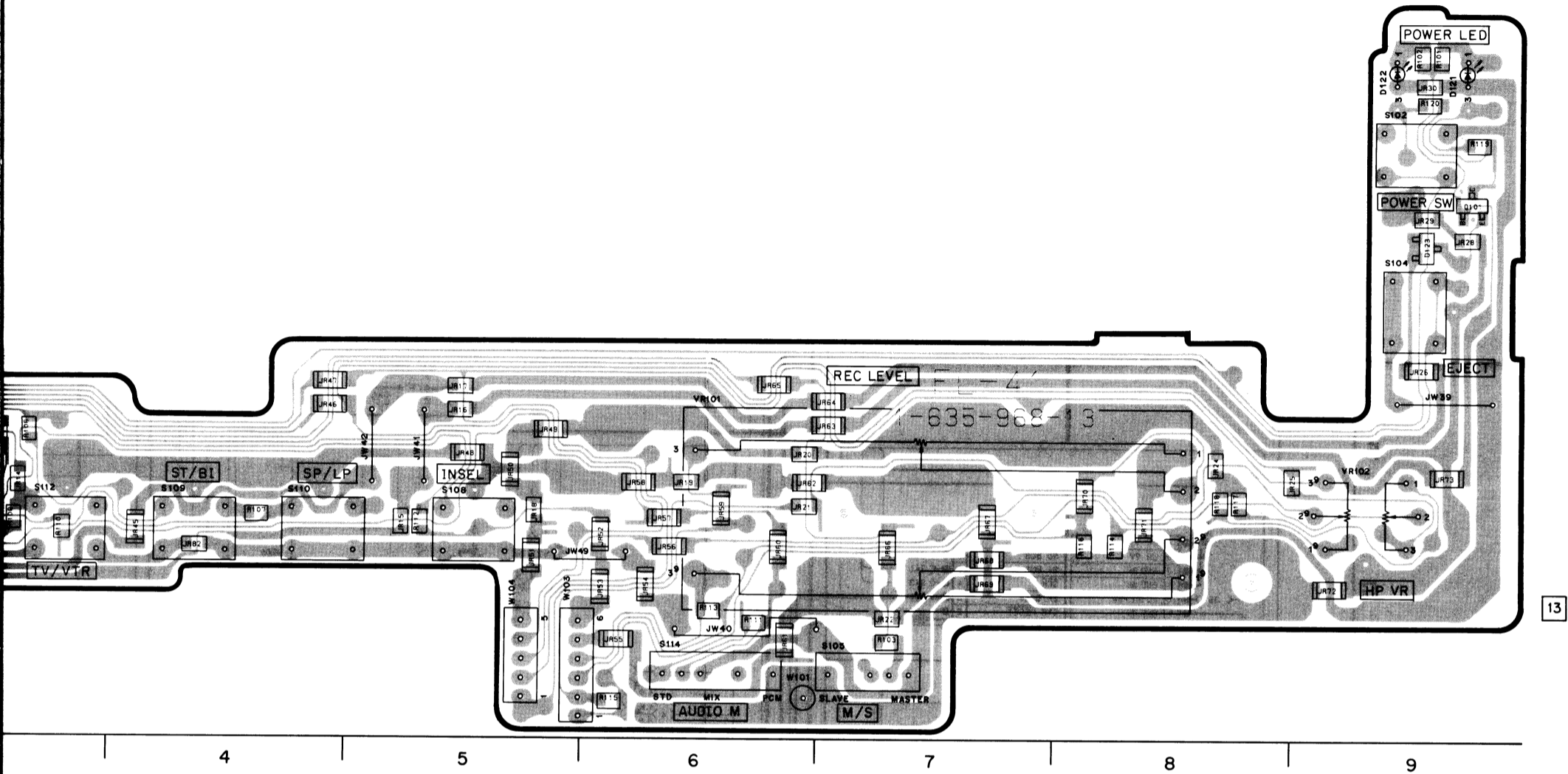


1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---



Parts on the pattern face side seen from the pattern face are indicated.

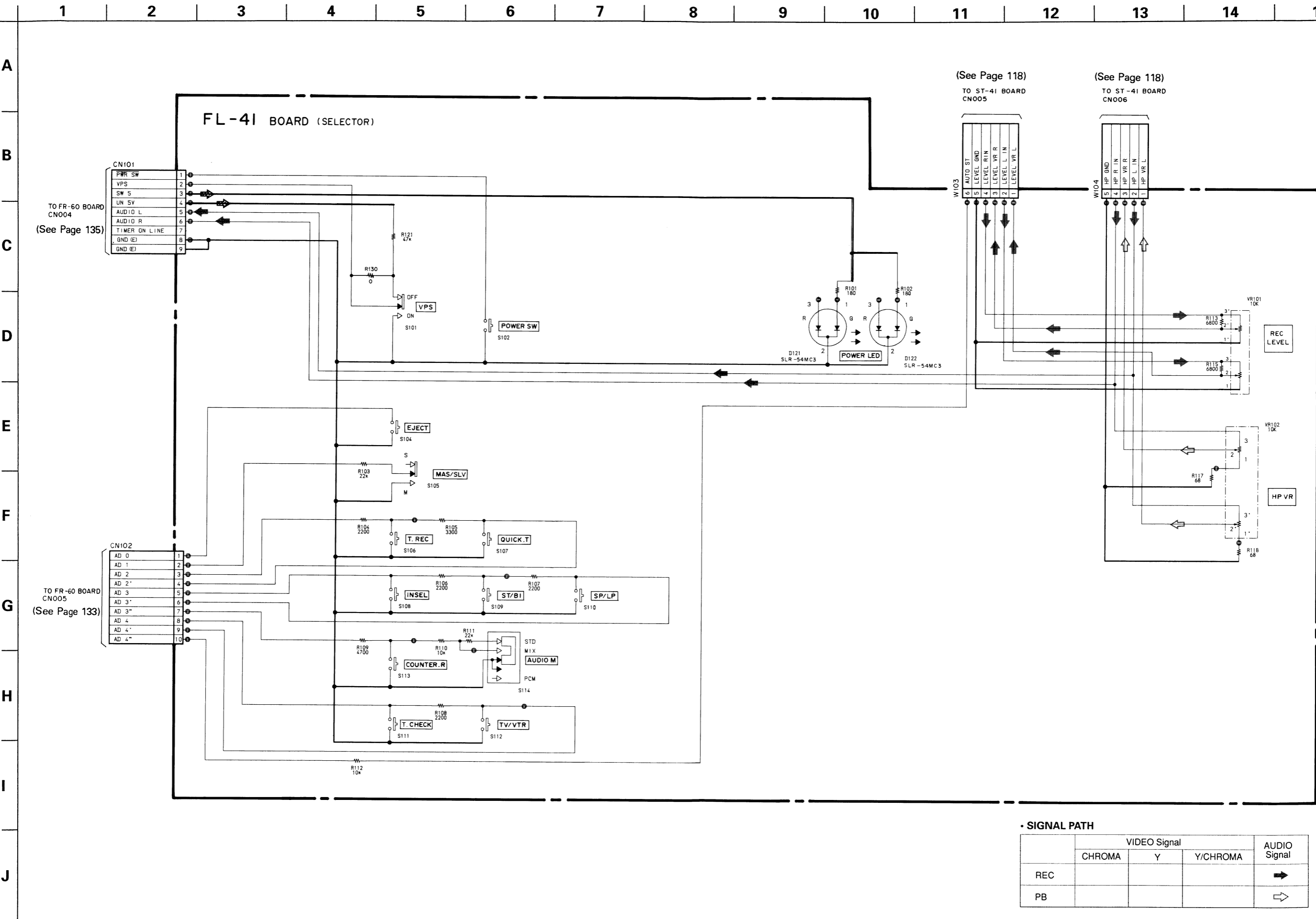
Parts on the parts face side seen from the parts face are indicated.



• SIGNAL PATH

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡➡	
PB			➡➡	

FL-41 (SELECTOR) SCHEMATIC DIAGRAM
—Ref. No. FL-41 Board: 7000 series—



IN-40 (SIGNAL INTERMEDIATION) PRINTED WIRING BOARD
—Ref. No. IN-40 Board: 8000 series—

DIODE

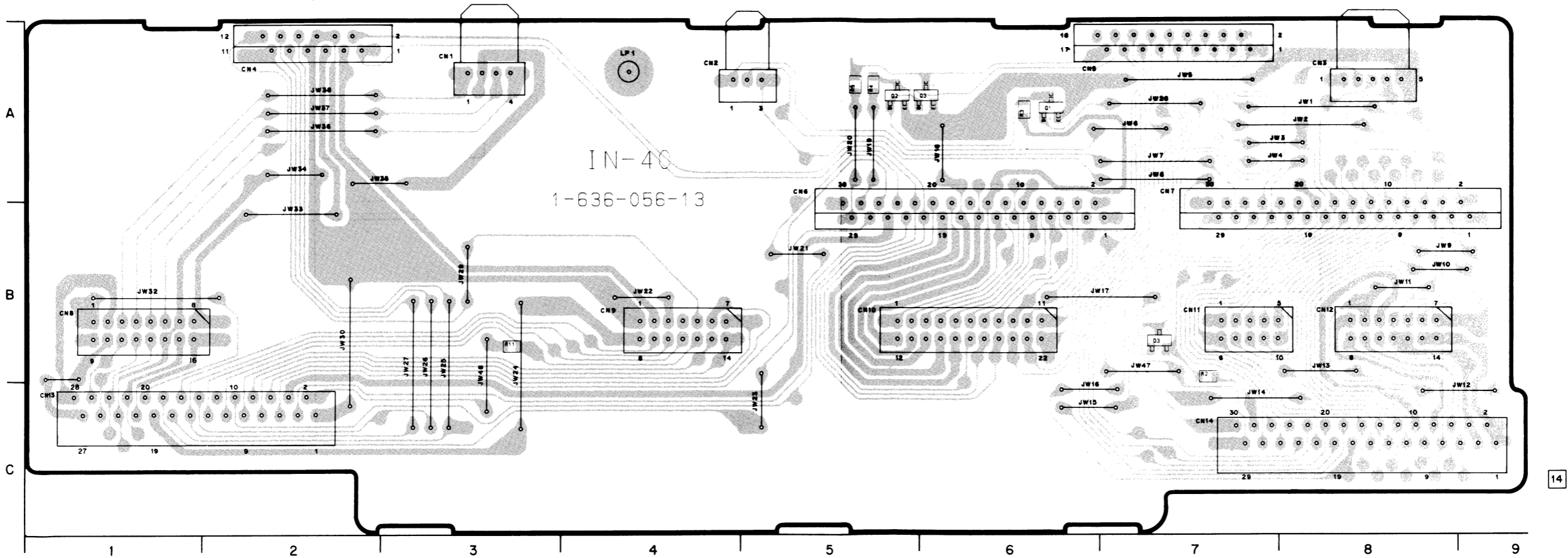
D003 8-719-400-18 DIODE MA152WK

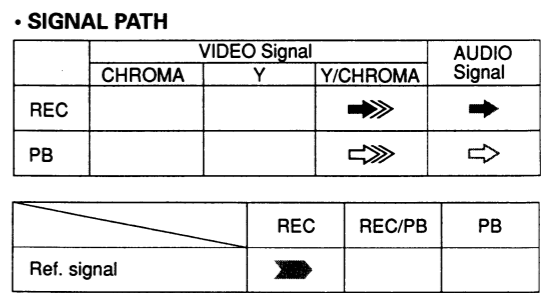
TRANSISTOR

Q001 8-729-901-00 TRANSISTOR DTC124EK
Q002 8-729-901-00 TRANSISTOR DTC124EK
Q003 8-729-901-00 TRANSISTOR DTC124EK

Caution:
Pattern face side: Parts on the pattern face side seen from
(Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the
(Component side) parts face are indicated.

IN-40 BOARD
(CONDUCTOR SIDE)





FR-60 (FL DISPLAY) PRINTED WIRING BOARD
—Ref. No. FL-60 Board: 9000 series—

DIODE				IC			
Δ D001	8-719-918-96	DIODE	AA3422S	D012	8-719-920-05	DIODE	SLP281C-50
D002	8-719-400-18	DIODE	MA152WK	D013	8-719-920-05	DIODE	SLP281C-50
D003	8-719-301-49	DIODE	SEL2810A	D014	8-719-812-32	DIODE	TLY123
D004	8-719-400-18	DIODE	MA152WK	D015	8-719-920-05	DIODE	SLP281C-50
D005	8-719-920-05	DIODE	SLP281C-50	D016	8-719-920-05	DIODE	SLP281C-50
D006	8-719-400-18	DIODE	MA152WK	D017	8-719-301-49	DIODE	SEL2810A
D007	8-719-921-01	DIODE	EBR5534S	D018	8-719-921-01	DIODE	EBR5534S
D008	8-719-400-18	DIODE	MA152WK	D020	8-719-918-96	DIODE	AA3422S
D010	8-719-400-18	DIODE	MA152WK	D021	8-719-812-33	DIODE	TLG123A
D011	8-719-921-01	DIODE	EBR5534S	D022	8-719-908-54	DIODE	SLR-54VC3
IC001	8-759-998-91	IC	BA6800AFVC	IC006	8-759-748-54	IC	CAT35C202P
IC002	1-466-131-21	IC	GP1U52X				
IC003	8-759-937-56	IC	S-8054ALB-LM-S				
IC004	8-759-941-78	IC	S-8053ALB				
IC005	8-759-502-15	IC	MB89793B-GDX451				

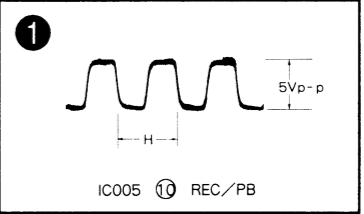
TRANSISTOR			
Q001	8-729-901-47	TRANSISTOR	DTA143EK
Q002	8-729-901-47	TRANSISTOR	DTA143EK
Q003	8-729-923-80	TRANSISTOR	DTC143EK
Q004	8-729-923-80	TRANSISTOR	DTC143EK
Q005	8-729-923-80	TRANSISTOR	DTC143EK
Q006	8-729-923-80	TRANSISTOR	DTC143EK
Q007	8-729-901-47	TRANSISTOR	DTA143EK

Caution:

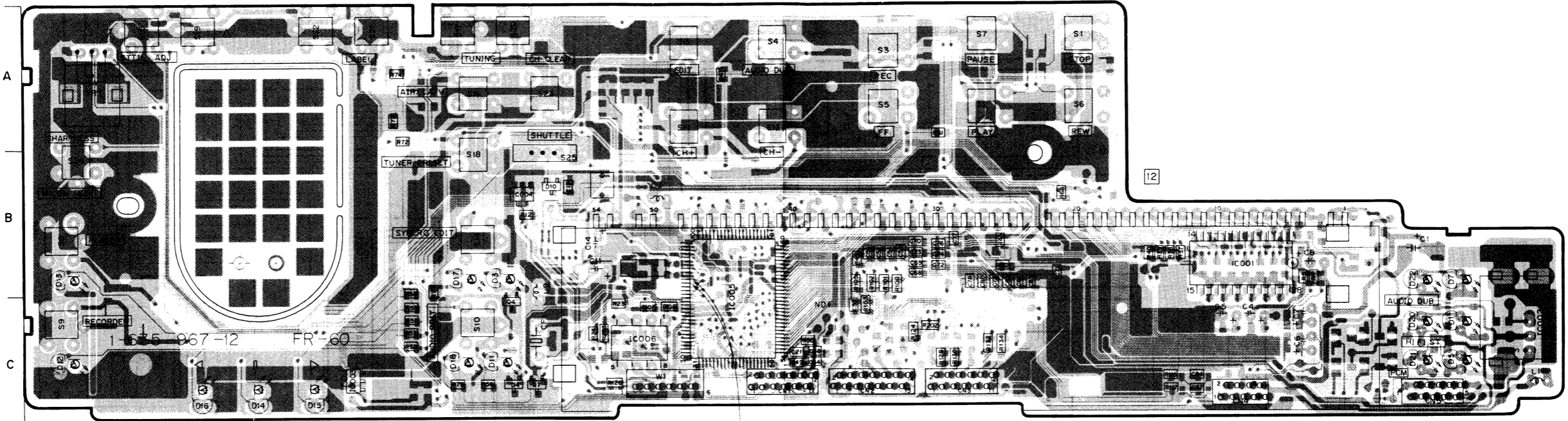
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the parts face are indicated.

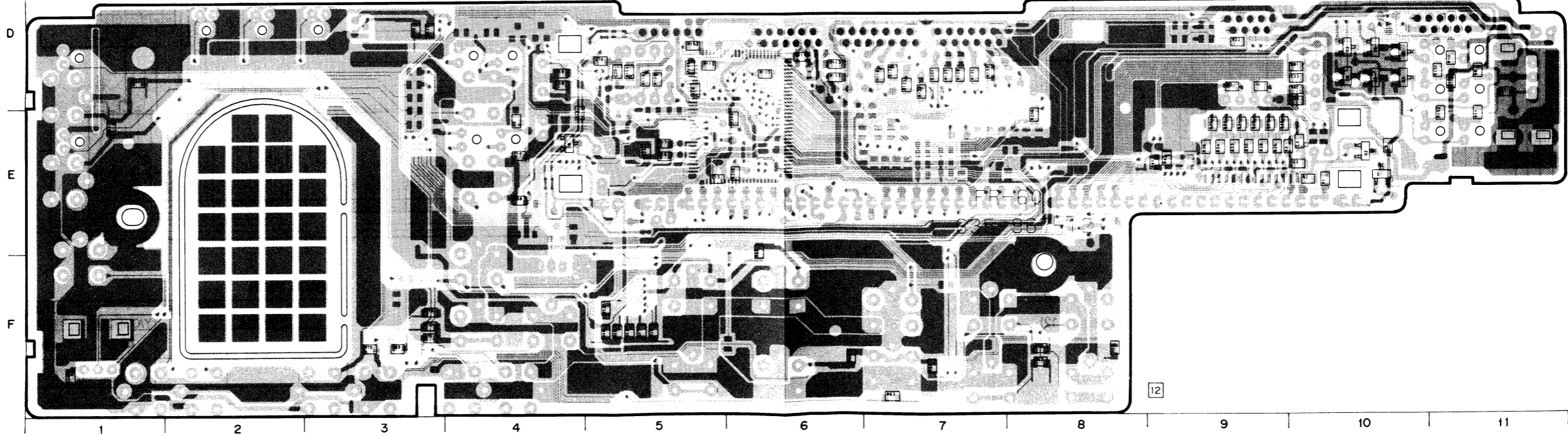
FR-60 BOARD



FR-60 BOARD
(COMPONENT SIDE)



FR-60 BOARD
(CONDUCTOR SIDE)



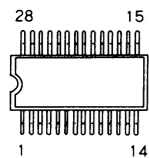
—Ref. No. FL-60 Board: 9000 series—



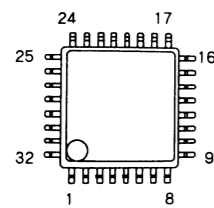


	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				

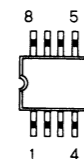
BA6800AFVC
CXD1077M



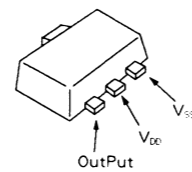
CXA1201Q
CXA1227
CXD2106Q



CXL1502M
LM358ML
 μ PC358G2
 μ PC393G2
 μ PC4572G2



GP1U52X
S-8053ALB-LI
S-8054ALB-LM-S

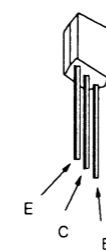


TL431CLP

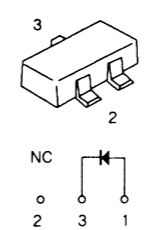


DTA114EK
DTA124EK
DTA143EK
DTA144EK
DTC114TK
DTC124EK
DTC143EK
DTC144EK
2SA1162
2SC1623
2SC2412K-QR
2SC3326N
2SC3395

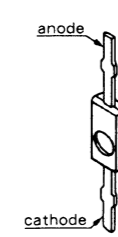
2SC535-C



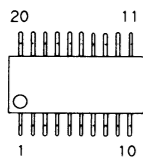
RD9.1M-B1
RD13M-B2
SB05-05CP



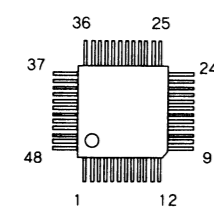
1T33C-01



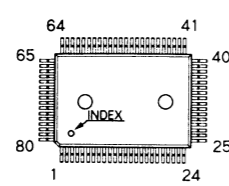
BU3786F



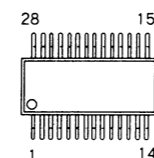
CXA1202Q-Z
CXA1449Q



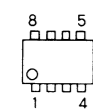
CXP80116-803Q



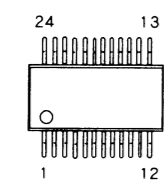
MB8464A-15LLPF



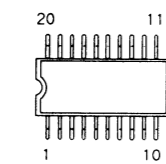
CAT35C202P



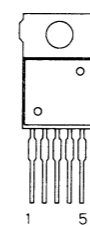
CXA1203M
CXA1219M



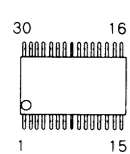
CX20102



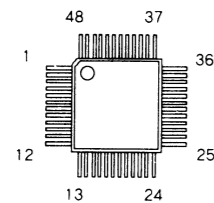
MC14052BF
MC14538BF



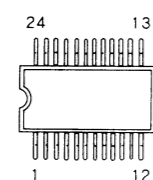
CXA1127MTP
LA7451M



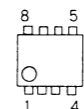
CXA1237AR
CF79050PV



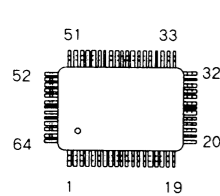
CX20114



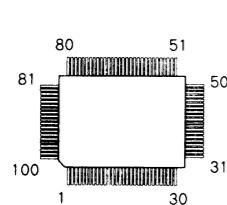
NJM2234M



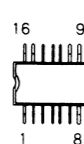
CXA1200BQ



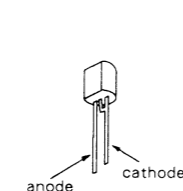
CXD1208Q
MB89793B



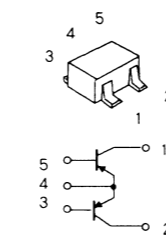
CX20115A
LB1631M
MB3775PF
MC14053BF



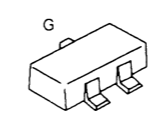
μ PC574J



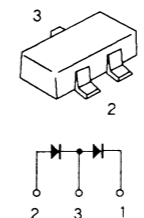
FMS2
FMS1



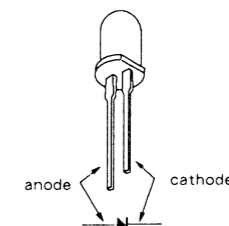
2SK160-K5



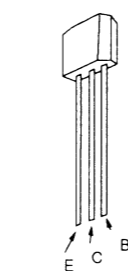
1SS226



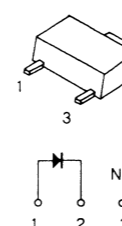
EBR5534S



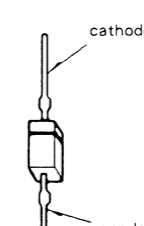
2SA1175
2SC2785-HFE



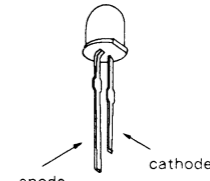
E10QS04



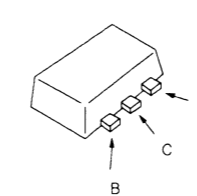
1SS283



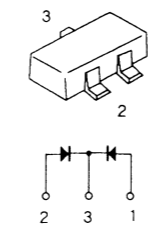
SEL2810A



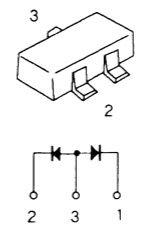
2SB1121



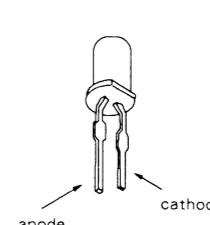
MA152WK



1S2836



TLY123
SLP281C-50



NOTE:
• -XX, -X me
may have
original one
• The constru
part are in
number in t

6-1. CABIN

No.	Part No.
1	X-3749-
2	4-886-8
3	3-731-1
4	*A-7062-
5	3-731-1
6	*A-7062-
7	*1-636-0
8	*A-7062-
9	X-3940-
10	1-238-7
11	3-749-0
12	X-3940-

SECTION 6
EXPLODED VIEW

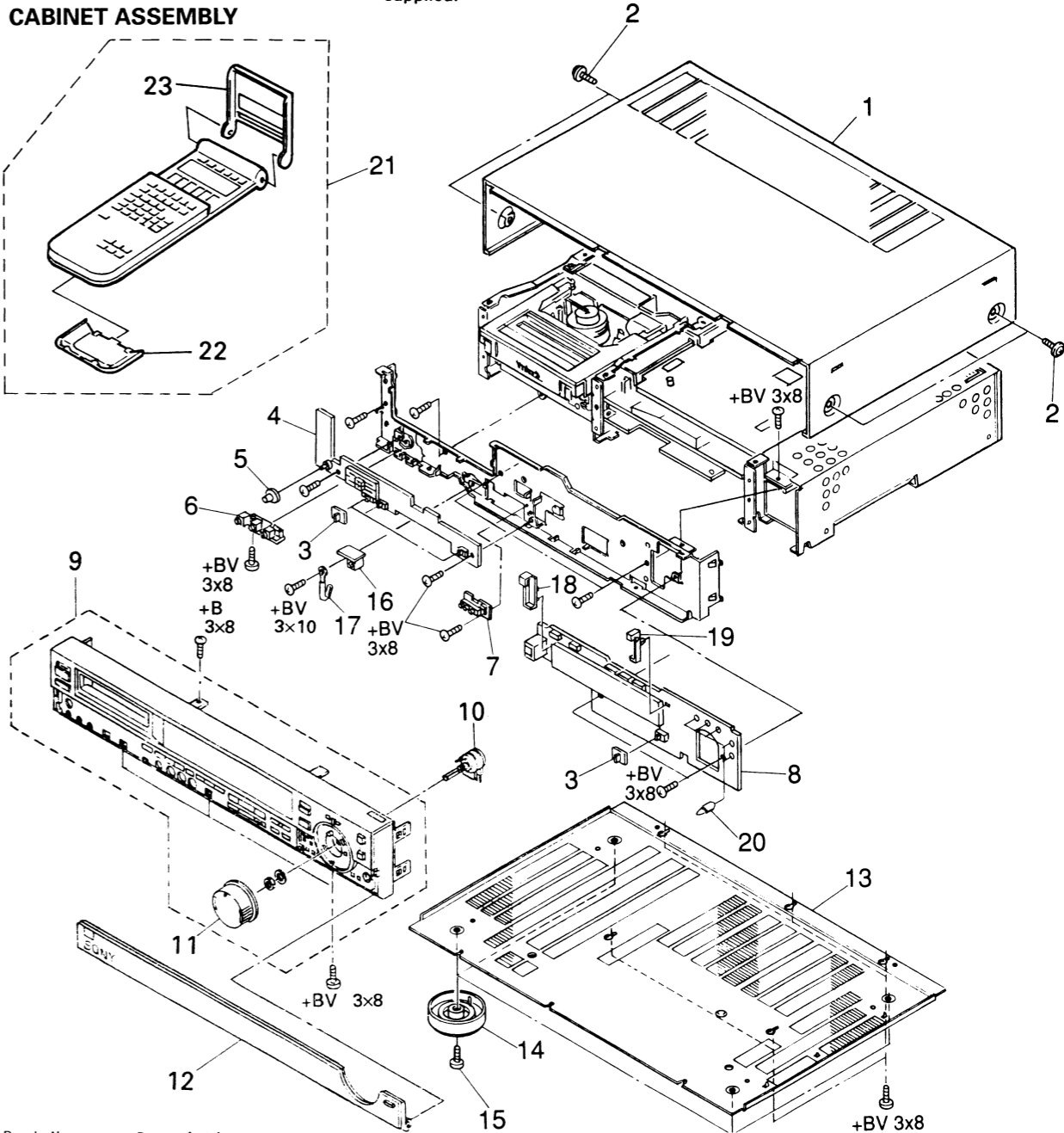
NOTE:

- -XX, -X mean standard parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

6-1. CABINET ASSEMBLY

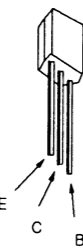


No.	Part No.	Description
1	X-3749-070-2	CASE ASSY, UPPER
2	4-886-821-01	SCREW, M3 CASE
3	3-731-108-01	KNOB, SLIDE
4	*A-7062-454-A	FL-41 BOARD, COMPLETE
5	3-731-111-01	KNOB, VOLUME, MICROPHONE
6	*A-7062-530-A	MC-60 BOARD, COMPLETE
7	*1-636-059-11	FJ-11 BOARD
8	*A-7062-455-A	FR-60 BOARD, COMPLETE
9	X-3940-135-1	PANEL ASSY, FRONT
10	1-238-738-11	RES, VAR, CARRON 10K
11	3-749-054-01	DIAL
12	X-3940-136-1	DOOR ASSY

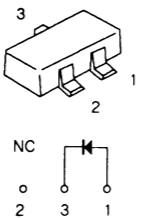
No.	Part No.	Description	Remark
13	*3-742-559-01	PLATE, BOTTOM	
14	3-744-272-31	FOOT	
15	7-685-871-01	SCREW +BVTT 3X6 (S)	
16	*1-636-057-11	DJ-10 BOARD	
17	*3-701-822-00	HOLDER, WIRE	
18	*3-742-524-11	HOLDER (L), INDICATION TUBE	
19	*3-749-041-01	HOLDER (R), INDICATION TUBE	
20	*3-697-607-01	HOLDER (SU), LED	
21	1-465-577-11	REMOTE CONTROLLER (RMT-456)	22, 23
22	2-181-766-01	COVER, BATTERY	
23	2-181-770-01	COVER, TIMER	

DTA114EK
DTA124EK
DTA143EK
DTA144EK
DTC114TK
DTC124EK
DTC143EK
DTC144EK
2SA1162
2SC1623
2SC2412K-QR
2SC3326N
2SC3395

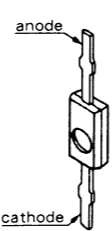
2SC535-C



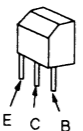
RD9.1M-B1
RD13M-B2
SB05-05CP



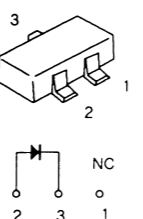
1T33C-01



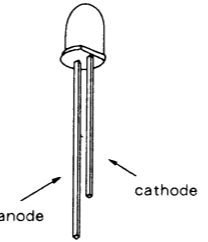
2SD774-34



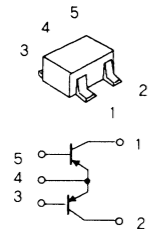
RD9.1M-B2
RD9.1M-B3



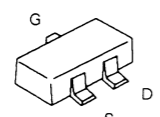
AA3422S



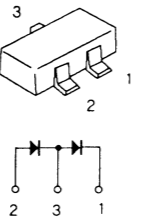
FMS2
FMS1



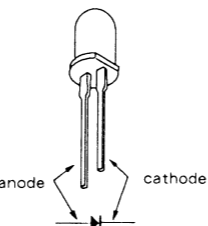
2SK160-K5



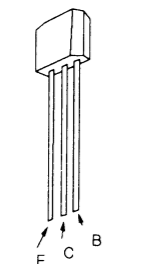
1SS226



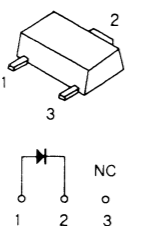
EBR5534S



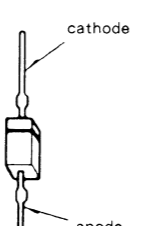
2SA1175
2SC2785-HFE



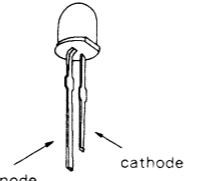
E10QS04



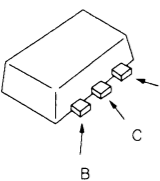
1SS283



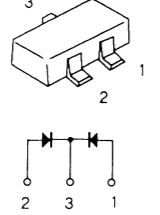
SEL2810A



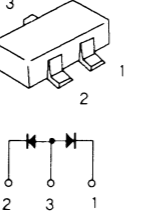
2SB1121



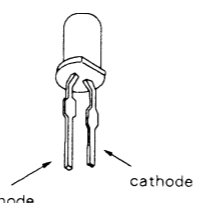
MA152WK



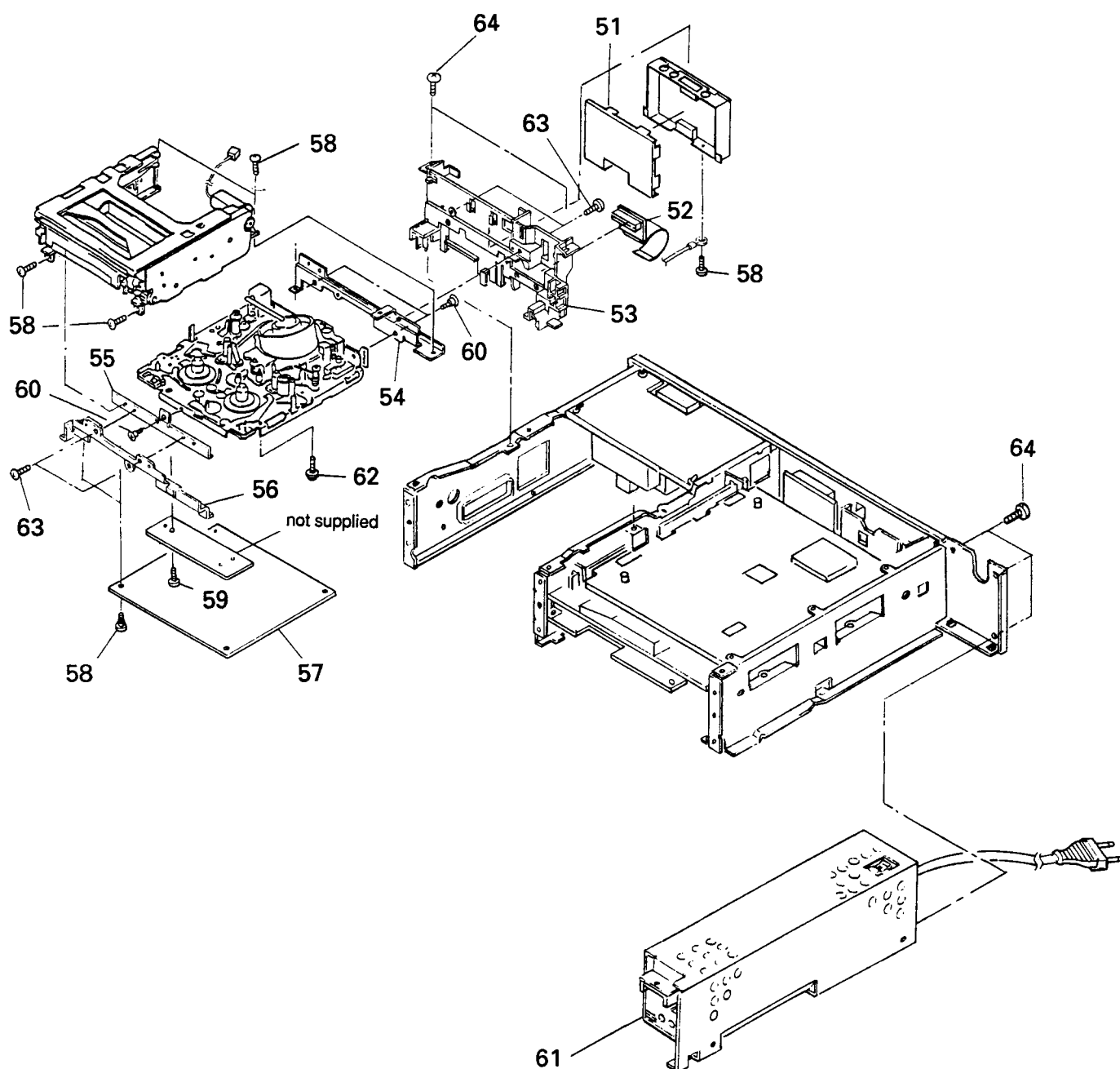
1S2836



TLY123
SLP281C-50



6-2. MAIN CHASSIS ASSEMBLY

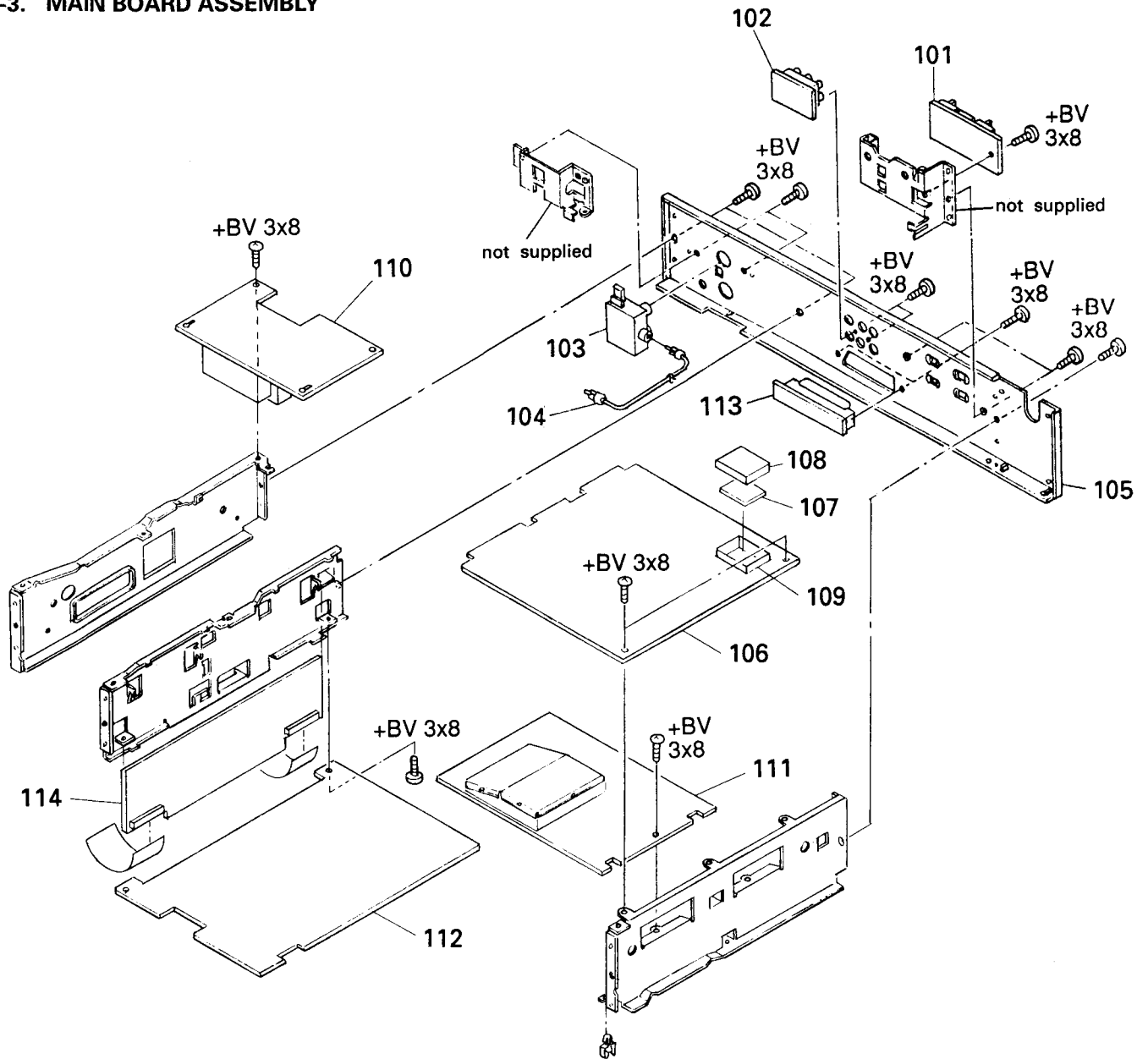


The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

No.	Part No.	Description
51	*A-7062-451-A	RP-69 BOARD, COMPLETE
52	*1-628-694-21	CC-23 BOARD
53	*3-731-141-01	FRAME (REAR), MD
54	*3-732-811-01	BRACKET (REAR)
55	*3-732-810-02	BRACKET (FRONT)
56	*3-731-132-01	FRAME (FRONT), MD
57	*A-7062-452-A	CM-13 BOARD, COMPLETE

Remark	No.	Part No.	Description	Remark
	58	3-732-817-01	SCREW (2X4.5), TAPPING	
	59	3-713-790-21	SCREW (M2X6), TAPPING, P3	
	60	3-732-816-01	SCREW, STEP	
	61 Δ	1-413-591-11	SWITCHING REGULATOR	
	62	3-703-502-01	SCREW	
	63	7-627-853-47	PRECISION SCREW +P 2X4 TYPE 3	
	64	7-685-646-71	SCREW +BVTP 3X8 TYPE2	

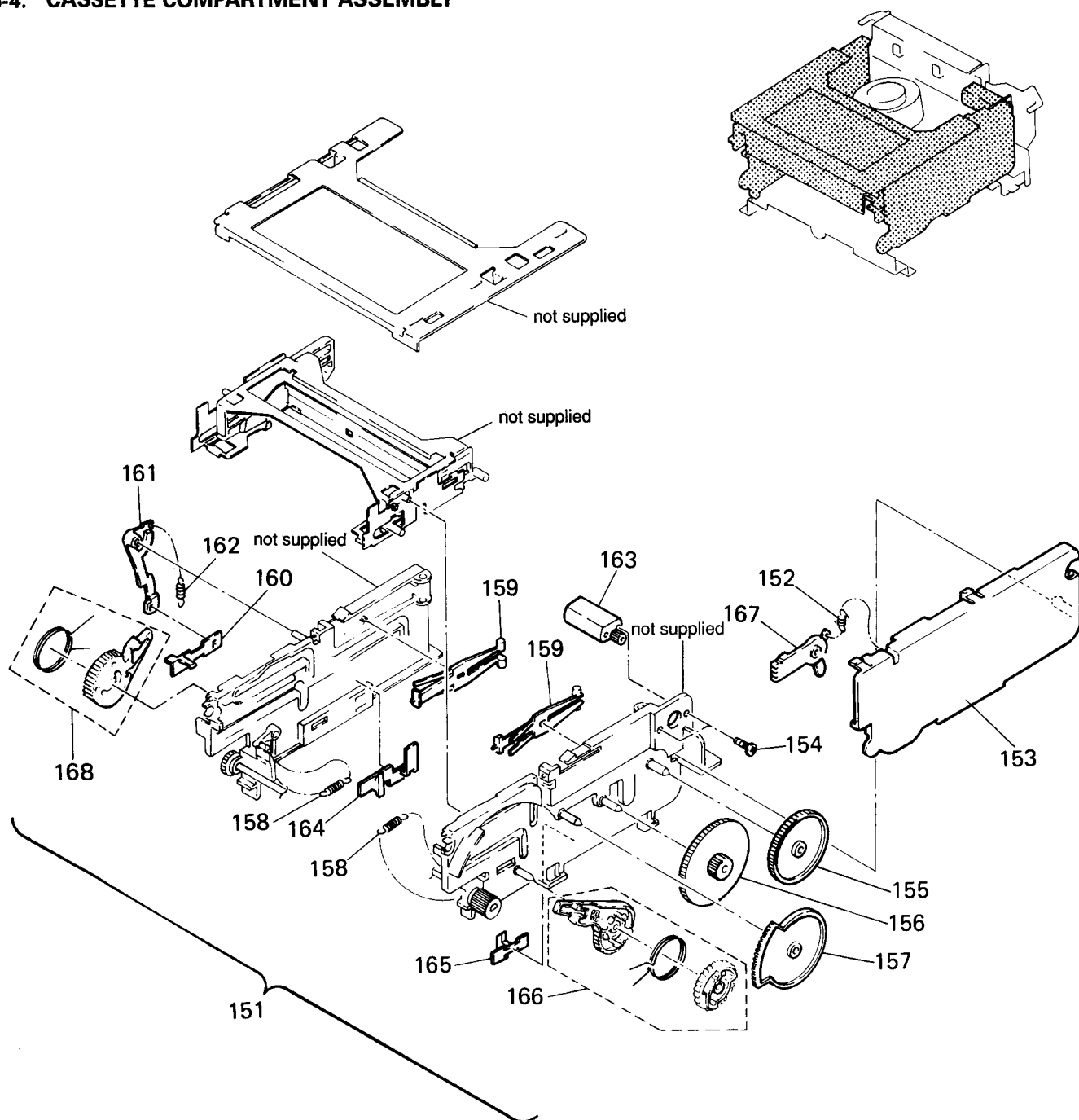
6-3. MAIN BOARD ASSEMBLY



The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

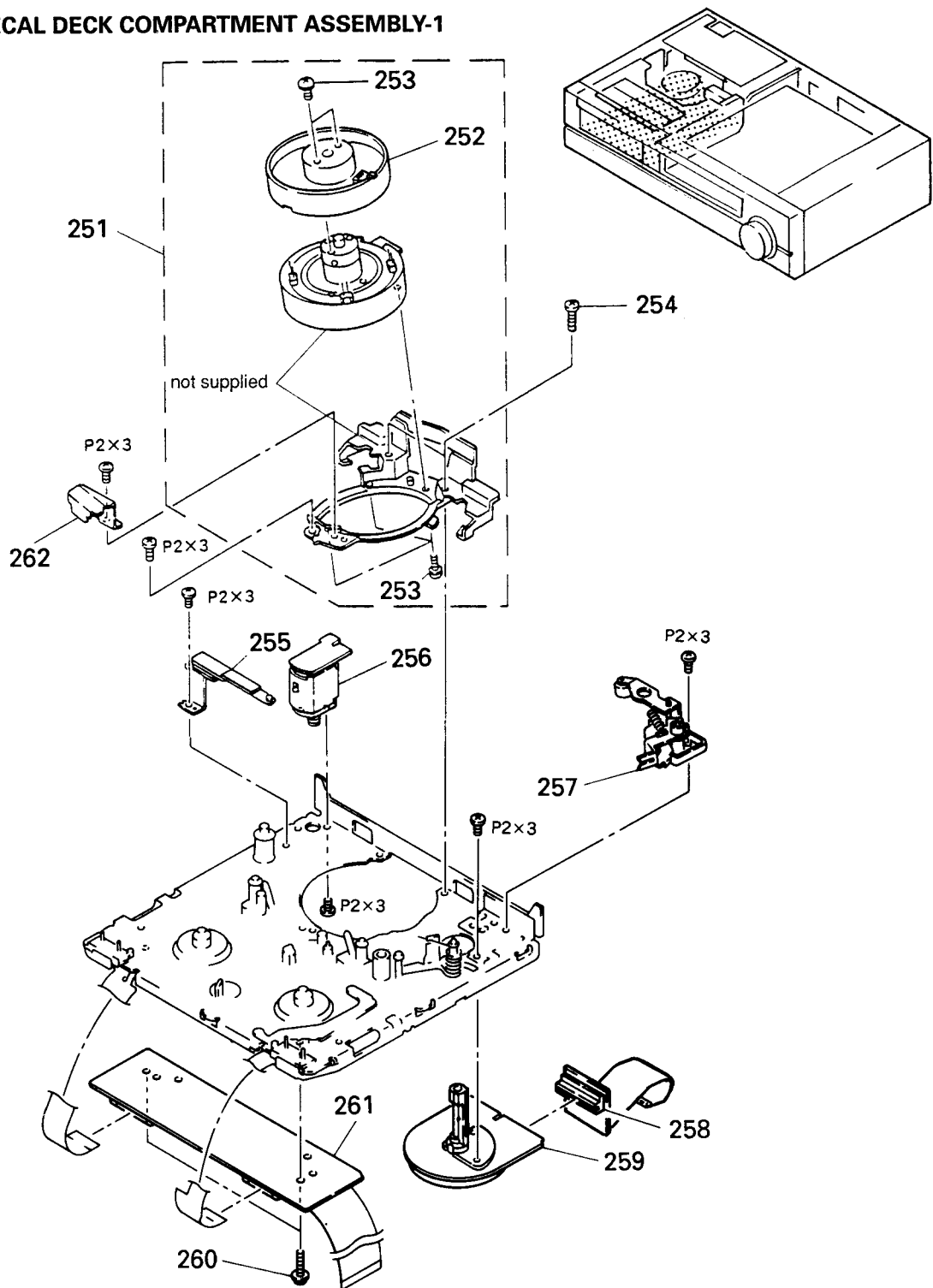
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
101	*A-7062-464-A	RS-54 BOARD, COMPLETE		109	*3-731-164-01	CASE (MAIN), SHILED, CCD	
102	*A-7062-463-A	RJ-20 BOARD, COMPLETE		110	*A-7062-456-A	TU-100 BOARD, COMPLETE	
103	Δ 1-466-328-31	MODULATOR, RF (RFU-2027)		111	*A-7062-457-A	PC-50 BOARD, COMPLETE	
104	1-558-924-41	CABLE, PIN		112	*A-7062-458-A	ST-41 BOARD, COMPLETE	
105	*3-749-055-21	FRAME, REAR		113	*1-636-959-11	RC-41 BOARD	
106	*A-7062-453-A	VI-98 BOARD, COMPLETE		114	*A-7062-462-A	IN-40 BOARD, COMPLETE	
107	*A-7062-465-A	CC-56 BOARD, COMPLETE					
108	*3-731-165-01	LID, SHILED CASE, CCD					

6-4. CASSETTE COMPARTMENT ASSEMBLY



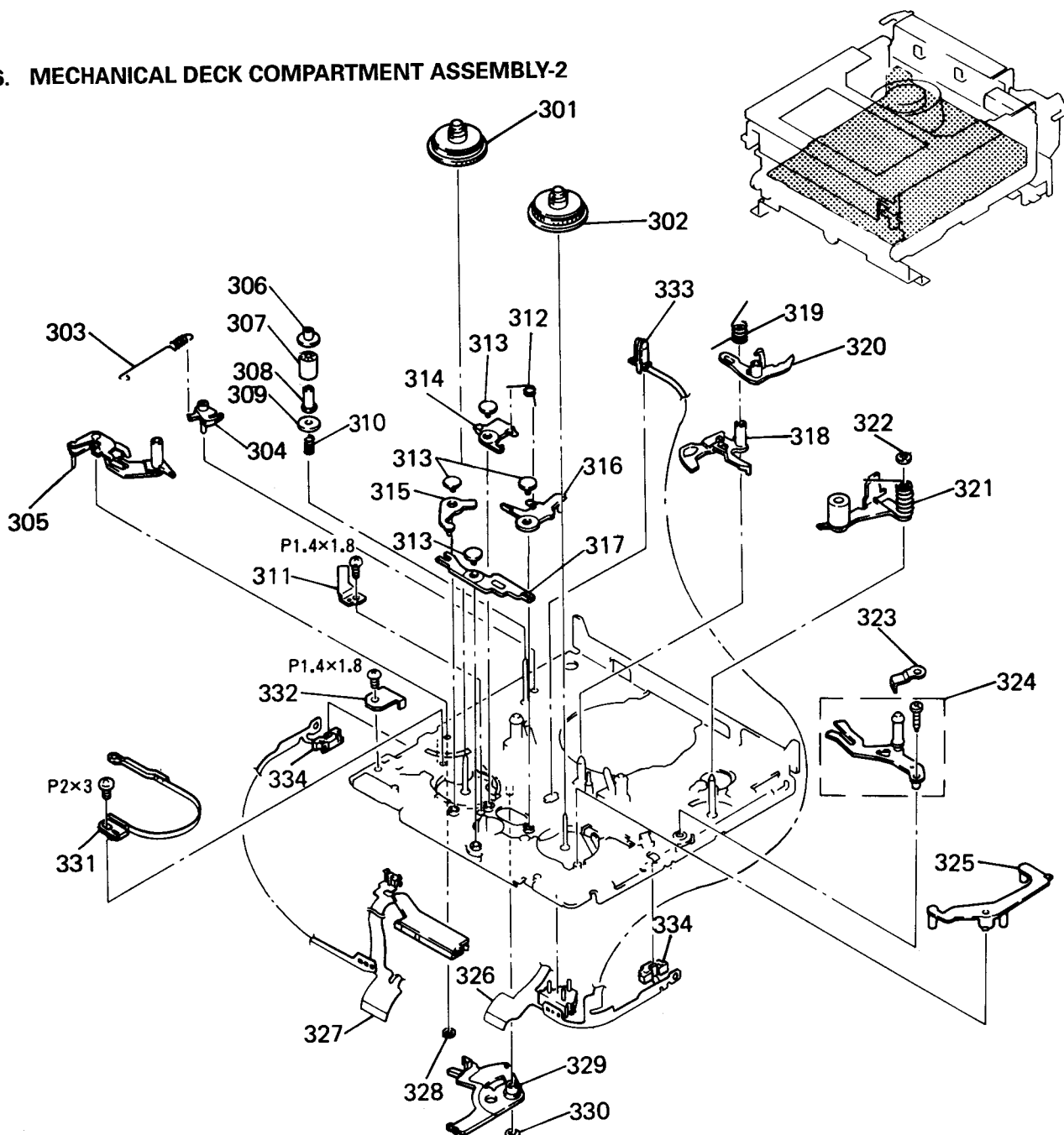
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151	A-7090-892-A	CASSETTE COMPARTMENT ASSY, FL	152-168	160	3-731-189-01	SLIDER, LOCK	
152	3-731-175-02	SPRING, TENSION		161	3-731-188-01	ARM LOCK, DRIVING	
153	3-732-804-03	COVER, GEAR		162	3-731-174-01	SPRING, TENSION	
154	3-730-141-01	SCREW (PSW) (2X4)		163	X-3731-108-1	MOTOR ASSY	
155	3-731-182-01	GEAR (B), DECELERATION		164	X-3726-867-1	PRISM (LEFT) ASSY	
156	3-731-181-01	GEAR (A), DECELERATION		165	X-3726-866-1	PRISM (RIGHT) ASSY	
157	3-731-192-01	GEAR, MIDWAY		166	X-3731-109-2	ARM (RIGHT) ASSY, DRIVING	
158	3-731-176-02	SPRING, TENSION		167	3-731-185-01	LINK, SWITCHING, DOOR	
159	3-731-184-02	HOLDER LOCK		168	X-3731-111-1	ARM (LEFT) ASSY, DRIVING	

6-5. MECHANICAL DECK COMPARTMENT ASSEMBLY-1



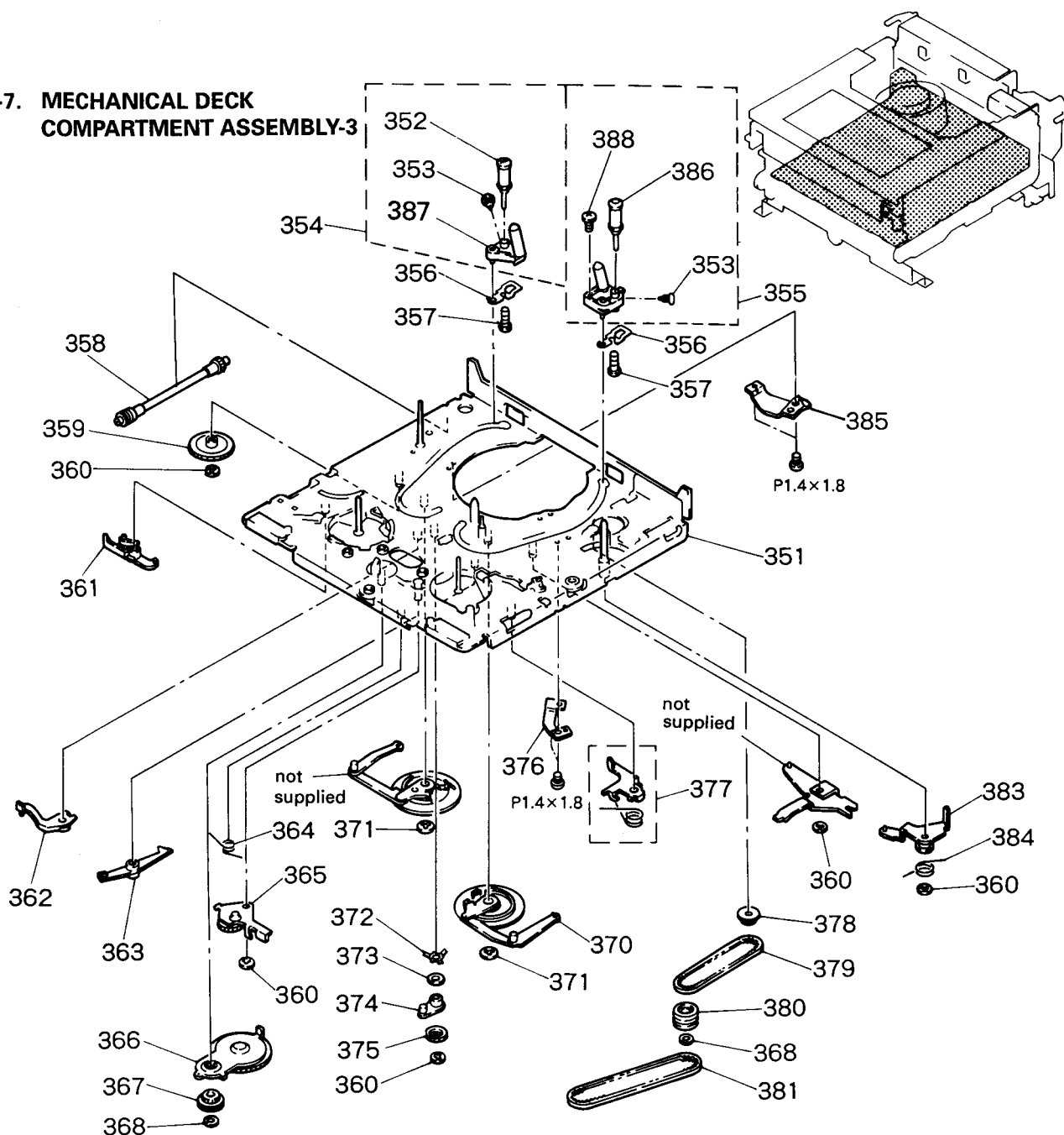
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
251	A-7048-424-A	DRUM ASSY (DGR-72A-R)	252, 253	257	A-7040-161-B	ROLLER BLOCK ASSY, HC	
252	A-7049-355-A	DRUM ASSY, UPPER, ROTARY (DGR-72-R)		258	*1-628-694-21	CC-23 BOARD	
253	3-686-493-01	SCREW (M2X5)		259	8-835-331-01	MOTOR, DC U-22A	
254	3-736-406-01	SCREW (3) (M2X10)		260	3-732-817-01	SCREW (2X4.5), TAPPING	
255	X-3728-864-1	GROUND ASSY, SHAFT		261	*1-628-908-11	UC-3 BOARD	
256	A-7040-160-A	MOTOR ASSY, THREADING		262	3-728-868-01	GUARD, GUIDE	

6-6. MECHANICAL DECK COMPARTMENT ASSEMBLY-2



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
301	X-3728-851-1	TABLE ASSY, REEL, S		318	3-728-875-01	STOPPER, RK	
302	X-3728-855-1	TABLE ASSY, REEL, T		319	3-726-864-01	SPRING (RK), TORSION	
303	3-736-414-01	SPRING, TENSION		320	3-728-852-02	ARM, RK STOPPER	
304	3-728-855-03	ARM, ADJUSTMENT		321	A-7040-219-A	ARM BLOCK ASSY, PINCH	
305	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR		322	3-669-465-00	WASHER (1.5), STOPPER	
306	3-726-884-01	FLANGE, UPPER, TG2		323	3-728-808-01	SPRING, LEAF	
307	3-726-883-01	ROLLER, TG2		324	X-3728-869-1	ARM ASSY, TG7	
308	3-726-885-01	SLEEVE, TG2		325	3-728-848-01	ARM, LB RELEASE	
309	3-726-882-02	FLANGE, LOWER, TG2		326	1-628-061-12	FP-90 FLEXIBLE BOARD	
310	3-726-886-01	SPRING, COMPRESSION		327	1-628-060-12	FP-89 FLEXIBLE BOARD	
311	3-726-848-01	RETAINER, TL		328	3-321-393-11	WASHER, STOPPER	
312	3-726-866-01	SPRING (ST), TORSION		329	X-3726-806-2	LEVER ASSY, SW	
313	3-726-858-01	PIN, SHAFT RETAINER		330	3-726-829-01	WASHER, STOPPER	
314	3-728-849-01	BRAKE, S		331	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
315	3-726-852-01	BRAKE, LB		332	3-730-125-01	RETAINER, SW	
316	3-728-850-01	BRAKE, T		333	3-728-837-01	HOLDER, LED	
317	3-726-853-01	LEVER, LB		334	3-728-869-02	HOLDER, SENSOR	

6-7. MECHANICAL DECK COMPARTMENT ASSEMBLY-3



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
351	*X-3749-038-1	CHASSIS ASSY, MECHANICAL		370	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
352	X-3728-810-1	ROLLER ASSY (U) (PLATING), GUIDE		371	3-669-465-00	WASHER (1.5), STOPPER	
353	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD		372	3-726-867-01	SPRING, LEAF	
354	A-7040-184-A	COASTER (LEFT) BLOCK ASSY-ND	352, 353, 387	373	3-701-436-21	WASHER, POLYETHYLENE	
355	A-7040-217-A	COASTER (RIGHT) BLOCK ASSY (NIP)	353, 386-388	374	3-726-857-03	ARM, UL	
356	3-736-485-01	SPRING, LEAF, COSTER		375	3-726-856-04	GEAR, UL	
357	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)		376	*3-726-805-01	REINFORCEMENT (TT)	
358	X-3728-868-1	WORM ASSY		377	X-3726-808-2	BRAKE ASSY, TS	
359	3-744-109-01	GEAR, WHEEL		378	X-3726-805-1	GEAR ASSY, JOINT	
360	3-726-829-01	WASHER, STOPPER		379	3-728-866-11	BELT (S), TIMING	
361	3-728-842-01	LEVER, EJECT		380	X-3726-813-1	PULLEY (UPPER) ASSY, MIDWAY	
362	3-729-851-01	BRAKE, UL		381	3-741-197-01	BELT (L), TIMING	
363	3-726-854-01	ARM, BRAKE RELEASE		383	X-3726-824-1	ARM ASSY, PINCH SUB	
364	3-726-865-01	SPRING (LB), TORSION		384	3-726-895-01	SPRING	
365	A-7040-130-A	GEAR BLOCK ASSY, LB		385	X-3726-841-1	REINFORCEMENT (SS) ASSY	
366	X-3728-866-1	GEAR ASSY, RK		386	X-3726-820-1	ROLLER ASSY (U), GUIDE	
367	X-3728-858-1	GEAR ASSY, RC		387	X-3726-818-1	COASTER (LEFT) ASSY	
368	3-533-073-01	WASHER		388	3-736-473-01	SCREW (M2X0.25) (THREE LOCK)	

FP-89**FP-90**

SECTION 7

ELECTRICAL PARTS LIST

RP-69**NOTE:**

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE : Metal Oxide-film resistor
F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, U: μ , for example:
UA...: μ A..., UPA...: μ PA...,
UPB...: μ PB..., UPC...: μ PC...,
UPD...: μ PD...
- CAPACITORS
MF : μ F, PF : μ μ F
- COILS
MMH : mH, UH : μ H

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	1-628-060-12	FP-89 FLEXIBLE BOARD (Ref.No 3,000 Series) *****		C053	1-164-633-11	CERAMIC CHIP 0.1MF	10% 25V
	1-571-099-11	SWITCH		C054	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V
	1-572-253-11	SWITCH, SLIDE		C055	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
	3-728-869-02	HOLDER, SENSOR		C056	1-164-232-11	CERAMIC CHIP 0.01MF	50V
		<u>DIODE</u>		C059	1-124-778-00	ELECT CHIP 22MF	20% 6.3V
D301	8-719-820-44	PHOTO COUPLER TLP907-0		C060	1-163-038-00	CERAMIC CHIP 0.1MF	25V
		<u>TRANSISTOR</u>		C061	1-164-232-11	CERAMIC CHIP 0.01MF	50V
Q301	8-729-906-48	TRANSISTOR EE-TP109		C062	1-164-232-11	CERAMIC CHIP 0.01MF	50V
*****				C063	1-164-232-11	CERAMIC CHIP 0.01MF	50V
	1-628-061-12	FP-90 FLEXIBLE BOARD (Ref.No 3,000 Series) *****		C073	1-163-038-00	CERAMIC CHIP 0.1MF	25V
	1-572-298-11	SWITCH, PUSH		C074	1-164-232-11	CERAMIC CHIP 0.01MF	50V
	3-728-837-01	HOLDER, LED		C075	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
	3-728-869-02	HOLDER, SENSOR		C076	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
		<u>DIODE</u>		C077	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
D302	8-719-820-44	PHOTO COUPLER TLP907-0		C078	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
D303	8-719-940-81	DIODE GL452S		C080	1-124-778-00	ELECT CHIP 22MF	20% 6.3V
		<u>TRANSISTOR</u>		C081	1-163-038-00	CERAMIC CHIP 0.1MF	25V
Q302	8-729-906-48	TRANSISTOR EE-TP109		C083	1-126-193-11	ELECT CHIP 1MF	20% 50V
*****				C084	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
	*A-7062-451-A	RP-69 BOARD, COMPLETE (Ref.No 1,000 Series) *****		C088	1-124-778-00	ELECT CHIP 22MF	20% 6.3V
		<u>CAPACITOR</u>		C201	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C031	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C202	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C032	1-124-778-00	ELECT CHIP 22MF	20% 6.3V	C203	1-126-204-11	ELECT CHIP 47MF	20% 16V
C033	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C204	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C034	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C205	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C035	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C206	1-124-778-00	ELECT CHIP 22MF	20% 6.3V
C036	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C207	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C037	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C208	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C038	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C209	1-124-779-00	ELECT CHIP 10MF	20% 16V
C039	1-163-137-00	CERAMIC CHIP 680PF	5% 50V	C210	1-124-778-00	ELECT CHIP 22MF	20% 6.3V
C040	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C211	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C041	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C212	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C042	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C213	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C043	1-124-778-00	ELECT CHIP 22MF	20% 6.3V	C214	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C044	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C215	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C045	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C217	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C046	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C218	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C047	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C219	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C050	1-164-633-11	CERAMIC CHIP 0.1MF	10% 25V	C220	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C051	1-164-633-11	CERAMIC CHIP 0.1MF	10% 25V	C221	1-126-205-11	ELECT CHIP 47MF	20% 6.3V
C052	1-164-633-11	CERAMIC CHIP 0.1MF	10% 25V	C224	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
					<u>CONNECTOR</u>		
				CN001	1-565-073-11	SOCKET, CONNECTOR 16P	
				CN002	1-506-476-11	PIN, CONNECTOR 11P	
				CN004	*1-564-006-21	PIN, CONNECTOR 7P	
				CN005	1-506-471-11	PIN, CONNECTOR 6P	
				CN006	1-506-484-11	PIN, CONNECTOR 5P	
					<u>IC</u>		
				IC002	8-752-032-35	IC CXA1202Q-Z	
				IC003	8-759-710-09	IC NJM2233AM	

RP-69

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>COIL</u>							
L003	1-408-777-00	INDUCTOR CHIP 10UH		R063	1-216-081-00	METAL GLAZE 22K 5%	1/10W
L004	1-408-793-21	INDUCTOR CHIP 220UH		R064	1-216-748-11	METAL GLAZE 39K 5%	1/10W
L006	1-408-793-21	INDUCTOR CHIP 220UH		R065	1-216-033-00	METAL GLAZE 220 5%	1/10W
L007	1-408-777-00	INDUCTOR CHIP 10UH		R066	1-216-033-00	METAL GLAZE 220 5%	1/10W
L009	1-408-781-00	INDUCTOR CHIP 22UH		R067	1-216-017-00	METAL GLAZE 47 5%	1/10W
L201	1-410-735-21	INDUCTOR CHIP 0.33UH		R068	1-216-001-00	METAL GLAZE 10 5%	1/10W
L202	1-408-781-00	INDUCTOR CHIP 22UH		R069	1-216-049-00	METAL GLAZE 1K 5%	1/10W
L203	1-408-781-00	INDUCTOR CHIP 22UH		R070	1-216-081-00	METAL GLAZE 22K 5%	1/10W
L204	1-408-781-00	INDUCTOR CHIP 22UH		R071	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
<u>TRANSISTOR</u>				R090	1-216-304-11	METAL GLAZE 3.3 5%	1/10W
Q006	8-729-901-01	TRANSISTOR DTC144EK		R201	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
Q007	8-729-901-01	TRANSISTOR DTC144EK		R202	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
Q011	8-729-901-06	TRANSISTOR DTA144EK		R203	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q015	8-729-216-22	TRANSISTOR 2SA1162		R204	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q016	8-729-119-76	TRANSISTOR 2SA1175-HFE		R205	1-216-029-00	METAL GLAZE 150 5%	1/10W
Q017	8-729-216-22	TRANSISTOR 2SA1162		R206	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q201	8-729-202-38	TRANSISTOR 2SC3326N		R207	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q202	8-729-353-53	TRANSISTOR 2SC535-C		R208	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
Q203	8-729-100-66	TRANSISTOR 2SC1623		R209	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
Q204	8-729-100-66	TRANSISTOR 2SC1623		R210	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q205	8-729-100-66	TRANSISTOR 2SC1623		R211	1-216-047-00	METAL GLAZE 820 5%	1/10W
Q206	8-729-100-66	TRANSISTOR 2SC1623		R212	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
Q207	8-729-901-05	TRANSISTOR DTA124EK		R213	1-216-021-00	METAL GLAZE 68 5%	1/10W
Q208	8-729-901-00	TRANSISTOR DTC124EK		R214	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q209	8-729-901-04	TRANSISTOR DTA114EK		R215	1-216-085-00	METAL GLAZE 33K 5%	1/10W
Q210	8-729-100-66	TRANSISTOR 2SC1623		R216	1-216-077-00	METAL GLAZE 15K 5%	1/10W
Q211	8-729-100-66	TRANSISTOR 2SC1623		R217	1-216-047-00	METAL GLAZE 820 5%	1/10W
Q212	8-729-100-66	TRANSISTOR 2SC1623		R218	1-216-041-00	METAL GLAZE 470 5%	1/10W
<u>RESISTOR</u>				R219	1-216-039-00	METAL GLAZE 390 5%	1/10W
R028	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R220	1-216-041-00	METAL GLAZE 470 5%	1/10W
R031	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R221	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R033	1-216-095-00	METAL GLAZE 82K 5%	1/10W	R222	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R034	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R223	1-216-047-00	METAL GLAZE 820 5%	1/10W
R035	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R224	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R036	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R225	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R037	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R226	1-216-295-00	METAL GLAZE 0 5%	1/10W
R038	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R228	1-216-047-00	METAL GLAZE 820 5%	1/10W
R039	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R231	1-216-041-00	METAL GLAZE 470 5%	1/10W
R042	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R233	1-216-295-00	METAL GLAZE 0 5%	1/10W
R043	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R235	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R044	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R236	1-216-041-00	METAL GLAZE 470 5%	1/10W
R045	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R237	1-216-009-00	METAL GLAZE 22 5%	1/10W
R046	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R238	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R049	1-216-081-00	METAL GLAZE 22K 5%	1/10W	<u>VARIABLE RESISTOR</u>			
R050	1-216-081-00	METAL GLAZE 22K 5%	1/10W	RV003	1-230-498-11	RES, ADJ, CARBON 47K	
R051	1-216-089-00	METAL GLAZE 47K 5%	1/10W	RV004	1-230-498-11	RES, ADJ, CARBON 47K	
R052	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	RV201	1-230-496-11	RES, ADJ, CARBON 10K	
R053	1-216-081-00	METAL GLAZE 22K 5%	1/10W	*****			
R054	1-216-081-00	METAL GLAZE 22K 5%	1/10W				

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-7062-452-A	CM-13	BOARD, COMPLETE (Ref.No 3,000 Series)		C325	1-163-035-00	CERAMIC CHIP 0.047MF	50V
		*****		C326	1-164-232-11	CERAMIC CHIP 0.01MF	50V
	1-574-420-11	WIRE, FLAT TYPE 30P		C327	1-164-232-11	CERAMIC CHIP 0.01MF	50V
		<u>CAPACITOR</u>		C328	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C329	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C201	1-126-163-11	ELECT 4.7MF	20% 25V	C330	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C202	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C331	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C203	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C332	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C204	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C333	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C205	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C334	1-126-301-11	ELECT 1MF	20% 50V
C206	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C337	1-124-257-00	ELECT 2.2MF	20% 50V
C207	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C338	1-136-017-00	CERAMIC CHIP 0.0047MF	50V
C208	1-126-157-11	ELECT 10MF	20% 16V	C339	1-136-017-00	CERAMIC CHIP 0.0047MF	50V
C209	1-126-301-11	ELECT 1MF	20% 50V	C401	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C210	1-126-157-11	ELECT 10MF	20% 16V	C402	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C211	1-126-162-11	ELECT 3.3MF	20% 50V	C403	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C212	1-126-301-11	ELECT 1MF	20% 50V	C404	1-126-154-11	ELECT 47MF	20% 6.3V
C213	1-126-301-11	ELECT 1MF	20% 50V	C405	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C214	1-126-157-11	ELECT 10MF	20% 16V	C406	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C215	1-126-157-11	ELECT 10MF	20% 16V	C409	1-126-154-11	ELECT 47MF	20% 6.3V
C216	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C410	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C217	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C411	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C218	1-126-157-11	ELECT 10MF	20% 16V	C412	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C219	1-126-301-11	ELECT 1MF	20% 50V	C413	1-126-154-11	ELECT 47MF	20% 6.3V
C220	1-124-638-11	ELECT 22MF	20% 6.3V	C414	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C221	1-127-539-11	ELECT(SOLID) 1MF	20% 25V	C501	1-130-495-00	MYLAR 0.1MF	5% 50V
C223	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C502	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V
C224	1-135-180-21	TANTAL. CHIP 3.3MF	20% 6.3V	C503	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C301	1-126-157-11	ELECT 10MF	20% 16V	C504	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C302	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C505	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C303	1-126-157-11	ELECT 10MF	20% 16V	C506	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C304	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C507	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C305	1-163-009-11	CERAMIC CHIP 0.001MF	50V	C508	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C306	1-163-009-11	CERAMIC CHIP 0.001MF	50V	C509	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C307	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C510	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C308	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C511	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C309	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C512	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C310	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C513	1-127-491-00	ELECT(SOLID) 22MF	20% 10V
C311	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	C514	1-124-589-11	ELECT 47MF	20% 16V
C312	1-163-129-00	CERAMIC CHIP 330PF	5% 50V	C515	1-127-499-00	ELECT(SOLID) 22MF	20% 16V
C313	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C516	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C314	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C517	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C315	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C518	1-127-491-00	ELECT(SOLID) 22MF	20% 10V
C316	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C520	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C317	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V			<u>CONNECTOR</u>	
C318	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CN201	*1-566-183-61	PIN, CONNECTOR (PC BOARD) 4P	
C319	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CN202	*1-566-183-21	PIN, CONNECTOR (PC BOARD) 4P	
C320	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	CN203	1-574-346-11	CONNECTOR, FPC/FFC 15P	
C321	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	CN204	1-506-482-11	PIN, CONNECTOR 3P	
C322	1-163-111-00	CERAMIC CHIP 56PF	5% 50V	CN401	1-506-490-21	PIN, CONNECTOR 11P	
C323	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	CN403	*1-563-633-11	CONNECTOR, FLEXIBLE 30P	
C324	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	CN405	1-574-347-11	CONNECTOR, FPC/FFC 18P	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description
CN406	*1-566-181-61	PIN, CONNECTOR (PC BOARD) 2P
CN407	*1-566-181-21	PIN, CONNECTOR (PC BOARD) 2P

DIODE

D301	8-719-400-18	DIODE MA152WK
D401	8-719-400-18	DIODE MA152WK
D405	8-719-104-34	DIODE 1S2836
D406	8-719-104-34	DIODE 1S2836
D407	8-719-104-34	DIODE 1S2836
D408	8-719-104-34	DIODE 1S2836
D409	8-719-200-36	DIODE E10QSO
D410	8-719-200-36	DIODE E10QSO
D501	8-719-938-75	DIODE SB05-05CP
D502	8-719-938-75	DIODE SB05-05CP
D503	8-719-104-34	DIODE 1S2836

FERRITE BEAD

FB401	1-543-256-11	BEAD, FERRITE
FB402	1-543-256-11	BEAD, FERRITE

IC

IC201	8-759-107-68	IC CX20115A
IC202	8-759-206-24	IC CX20114
IC203	8-759-805-06	IC CXA1127M
IC301	8-752-050-54	IC CXA1449Q
IC302	8-759-013-22	IC LM358MR
IC401	8-752-815-05	IC CXP80116-803Q
IC402	8-759-978-07	IC BU-3786F
IC403	8-759-804-72	IC LB1631M
IC501	8-759-013-22	IC LM358MR
IC502	8-759-945-17	IC MB3775PF

COIL

L201	1-403-978-21	INDUCTOR 47UH
L301	1-407-169-XX	INDUCTOR 100UH
L302	1-403-987-21	INDUCTOR 330UH
L401	1-408-978-21	INDUCTOR 47UH
L501	1-424-104-11	COIL, CHOKE 10UH
L502	1-424-106-11	COIL, CHOKE 47UH
L503	1-424-106-11	COIL, CHOKE 47UH

TRANSISTOR

Q201	8-729-216-22	TRANSISTOR 2SA1162
Q202	8-729-902-96	TRANSISTOR FMS1
Q203	8-729-901-01	TRANSISTOR DTC144EK
Q301	8-729-216-22	TRANSISTOR 2SA1162
Q302	8-729-100-66	TRANSISTOR 2SC1623
Q303	8-729-216-22	TRANSISTOR 2SA1162
Q304	8-729-100-66	TRANSISTOR 2SC1623
Q305	8-729-216-22	TRANSISTOR 2SA1162
Q306	8-729-100-66	TRANSISTOR 2SC1623
Q307	8-729-920-74	TRANSISTOR 2SC2412K-QR

Remark	Ref.No	Part No.	Description	Remark
	Q308	8-729-901-01	TRANSISTOR DTC144EK	
	Q309	8-729-901-01	TRANSISTOR DTC144EK	
	Q403	8-729-901-06	TRANSISTOR DTA144EK	
	Q404	8-729-901-06	TRANSISTOR DTA144EK	
	Q407	8-729-920-74	TRANSISTOR 2SC2412K-QR	
	Q408	8-729-901-01	TRANSISTOR DTC144EK	
	Q501	8-729-901-01	TRANSISTOR DTC144EK	
	Q502	8-729-100-66	TRANSISTOR 2SC1623	
	Q503	8-729-805-25	TRANSISTOR 2SB1121	
	Q504	8-729-100-66	TRANSISTOR 2SC1623	
	Q505	8-729-805-25	TRANSISTOR 2SB1121	
	Q506	8-729-901-01	TRANSISTOR DTC144EK	
	Q507	8-729-901-06	TRANSISTOR DTA144EK	
	Q508	8-729-901-01	TRANSISTOR DTC144EK	
	Q509	8-729-920-74	TRANSISTOR 2SC2412K-QR	
	Q510	8-729-920-74	TRANSISTOR 2SC2412K-QR	
	RESISTOR			
	R101	1-216-296-00	METAL GLAZE 0 5% 1/8W	
	R201	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
	R202	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
	R203	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
	R204	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
	R205	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
	R206	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
	R209	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
	R210	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
	R211	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
	R212	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
	R213	1-216-045-00	METAL GLAZE 680 5% 1/10W	
	R214	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
	R215	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
	R216	1-216-025-00	METAL GLAZE 100 5% 1/10W	
	R217	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
	R218	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
	R219	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
	R220	1-216-304-11	METAL GLAZE 3.3 5% 1/10W	
	R221	1-216-304-11	METAL GLAZE 3.3 5% 1/10W	
	R222	1-216-304-11	METAL GLAZE 3.3 5% 1/10W	
	R223	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
	R224	1-216-295-00	METAL GLAZE 0 5% 1/10W	
	R301	1-216-041-00	METAL GLAZE 470 5% 1/10W	
	R302	1-216-041-00	METAL GLAZE 470 5% 1/10W	
	R303	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
	R304	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
	R305	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
	R306	1-216-035-00	METAL GLAZE 270 5% 1/10W	
	R307	1-216-031-00	METAL GLAZE 180 5% 1/10W	
	R309	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
	R310	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
	R312	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
	R313	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
	R314	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R315	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R447	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R316	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R448	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R317	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R449	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R318	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R501	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R319	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R502	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R320	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R503	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R321	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R504	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R322	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R505	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R323	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R506	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R325	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R507	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R326	1-216-029-00	METAL GLAZE	150 5% 1/10W	R508	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R327	1-216-029-00	METAL GLAZE	150 5% 1/10W	R510	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R328	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R511	1-216-033-00	METAL GLAZE	220 5% 1/10W
R329	1-216-121-00	METAL GLAZE	1M 5% 1/10W	R512	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R330	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R513	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R331	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R514	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R332	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R515	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R333	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R516	1-216-045-00	METAL GLAZE	680 5% 1/10W
R334	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R517	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R335	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R518	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R336	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R519	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R337	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R520	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R338	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R521	1-216-045-00	METAL GLAZE	680 5% 1/10W
R339	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R522	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R341	1-216-295-00	METAL GLAZE	0 5% 1/10W	R523	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R342	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R524	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R343	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R525	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R401	1-216-043-00	METAL GLAZE	560 5% 1/10W	R527	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R402	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R531	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R403	1-216-172-00	METAL GLAZE	82 5% 1/8W	R532	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R405	1-216-073-00	METAL GLAZE	10K 5% 1/10W	VARIABLE RESISTOR			
R406	1-216-073-00	METAL GLAZE	10K 5% 1/10W	RV301	1-230-496-11	RES, ADJ, CARBON 10K	
R407	1-216-073-00	METAL GLAZE	10K 5% 1/10W	RV401	1-230-499-11	RES, ADJ, CARBON 100K	
R408	1-216-073-00	METAL GLAZE	10K 5% 1/10W	RV501	1-228-993-00	RES, ADJ, CARBON 4.7K	
R410	1-216-093-00	METAL GLAZE	68K 5% 1/10W	CRYSTAL			
R411	1-216-093-00	METAL GLAZE	68K 5% 1/10W	X301	1-567-699-11	VIBRATOR, CRYSTAL (5.94755MHz)	
R414	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	X401	1-577-116-21	VIBRATOR, CRYSTAL (16MHz)	
R415	1-216-073-00	METAL GLAZE	10K 5% 1/10W	*****			
R416	1-216-073-00	METAL GLAZE	10K 5% 1/10W	*A-7062-453-A VI-98 BOARD, COMPLETE (Ref.No 2,000 Series)			
R417	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*****			
R418	1-216-049-00	METAL GLAZE	1K 5% 1/10W	1-216-081-00 METAL GLAZE 22K 5% 1/10W			
R419	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*3-731-164-01 CASE (MAIN), SHIELD, CCD			
R420	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*3-731-165-01 LID, SHIELD CASE, CCD			
R421	1-216-073-00	METAL GLAZE	10K 5% 1/10W	CAPACITOR			
R423	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C001	1-126-157-11	ELECT 10MF 20% 16V	
R424	1-216-295-00	METAL GLAZE	0 5% 1/10W	C002	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
R426	1-216-295-00	METAL GLAZE	0 5% 1/10W	C003	1-126-157-11	ELECT 10MF 20% 16V	
R428	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C004	1-126-157-11	ELECT 10MF 20% 16V	
R429	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C005	1-126-157-11	ELECT 10MF 20% 16V	
R432	1-216-073-00	METAL GLAZE	10K 5% 1/10W				
R435	1-216-295-00	METAL GLAZE	0 5% 1/10W				
R442	1-216-295-00	METAL GLAZE	0 5% 1/10W				
R444	1-216-295-00	METAL GLAZE	0 5% 1/10W				

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C006	1-126-157-11	ELECT 10MF	20% 16V	C207	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V
C007	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V	C209	1-163-107-00	CERAMIC CHIP 39PF	5% 50V
C008	1-126-157-11	ELECT 10MF	20% 16V	C210	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C009	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C211	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C010	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C212	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C011	1-126-157-11	ELECT 10MF	20% 16V	C213	1-163-116-00	CERAMIC CHIP 91PF	5% 50V
C012	1-126-157-11	ELECT 10MF	20% 16V	C214	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C013	1-163-127-00	CERAMIC CHIP 270PF	5% 50V	C250	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C014	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C251	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C015	1-124-638-11	ELECT 22MF	20% 6.3V	C252	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C016	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C253	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C017	1-126-157-11	ELECT 10MF	20% 16V	C254	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C018	1-124-968-11	ELECT 22MF	20% 6.3V	C255	1-163-127-00	CERAMIC CHIP 270PF	5% 50V
C019	1-126-157-11	ELECT 10MF	20% 16V	C256	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C020	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C257	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C021	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	C258	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C022	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	C259	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C023	1-124-589-11	ELECT 47MF	20% 10V	C260	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C024	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C262	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C025	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	C263	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C026	1-163-099-00	CERAMIC CHIP 18PF	5% 50V	C264	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C027	1-163-127-00	CERAMIC CHIP 270PF	5% 50V	C267	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C031	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C268	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C033	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C270	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C034	1-126-157-11	ELECT 10MF	20% 16V	C272	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C035	1-126-157-11	ELECT 10MF	20% 16V	C273	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C036	1-126-157-11	ELECT 10MF	20% 16V	C274	1-126-157-11	ELECT 10MF	20% 16V
C037	1-126-157-11	ELECT 10MF	20% 16V	C275	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C039	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C276	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V
C040	1-163-091-00	CERAMIC CHIP 8PF	0.25PF 50V	C277	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C041	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C278	1-161-021-11	CERAMIC 0.047MF	10% 25V
C042	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C300	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C043	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C301	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C045	1-124-465-00	ELECT 0.47MF	20% 50V	C302	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C046	1-126-157-11	ELECT 10MF	20% 16V	C303	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C047	1-124-465-00	ELECT 0.47MF	20% 50V	C304	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C048	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C305	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C049	1-126-301-11	ELECT 1MF	20% 50V	C306	1-163-131-00	CERAMIC CHIP 390PF	5% 50V
C050	1-126-301-11	ELECT 1MF	20% 50V	C307	1-163-033-00	CERAMIC CHIP 0.022MF	50V
C051	1-126-157-11	ELECT 10MF	20% 16V	C308	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C052	1-126-157-11	ELECT 10MF	20% 16V	C309	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V
C053	1-126-157-11	ELECT 10MF	20% 16V	C310	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C054	1-126-157-11	ELECT 10MF	20% 16V	C311	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C055	1-126-157-11	ELECT 10MF	20% 16V	C312	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C056	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C313	1-126-157-11	ELECT 10MF	20% 16V
C057	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C315	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C058	1-162-294-31	CERAMIC 0.001MF	10% 50V	C316	1-124-589-11	ELECT 47MF	20% 16V
C200	1-126-157-11	ELECT 10MF	20% 16V	C317	1-124-589-11	ELECT 47MF	20% 16V
C201	1-126-157-11	ELECT 10MF	20% 16V	C318	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C202	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C319	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C204	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C320	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C205	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C402	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C206	1-163-115-00	CERAMIC CHIP 82PF	5% 50V	C403	1-163-117-00	CERAMIC CHIP 100PF	5% 50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C404	1-126-301-11	ELECT 1MF	20% 50V	C719	1-126-157-11	ELECT 10MF	20% 16V
C405	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C720	1-126-157-11	ELECT 10MF	20% 16V
C406	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C721	1-126-157-11	ELECT 10MF	20% 16V
C407	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C722	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C408	1-126-163-11	ELECT 4.7MF	20% 35V	C723	1-124-589-11	ELECT 47MF	20% 16V
C409	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C724	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C410	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C725	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C411	1-126-157-11	ELECT 10MF	20% 16V	C726	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C412	1-163-118-00	CERAMIC CHIP 110PF	5% 50V	C727	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C413	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C729	1-126-301-11	ELECT 1MF	20% 50V
C414	1-126-163-11	ELECT 4.7MF	20% 35V	C730	1-126-301-11	ELECT 1MF	20% 50V
C415	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C731	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C416	1-163-127-00	CERAMIC CHIP 270PF	5% 50V	C733	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C500	1-126-157-11	ELECT 10MF	20% 16V	C734	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C501	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C735	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C502	1-124-465-00	ELECT 0.47MF	20% 50V	C736	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C503	1-163-033-00	CERAMIC CHIP 0.022MF	50V	C737	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C504	1-126-157-11	ELECT 10MF	20% 16V	C738	1-124-589-11	ELECT 47MF	20% 16V
C505	1-124-465-00	ELECT 0.47MF	20% 50V	C739	1-124-589-11	ELECT 47MF	20% 16V
C506	1-124-465-00	ELECT 0.47MF	20% 50V	C740	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C507	1-126-157-11	ELECT 10MF	20% 16V	C741	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C508	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C742	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C509	1-124-254-00	ELECT 0.68MF	20% 50V	C743	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C510	1-124-257-00	ELECT 2.2MF	20% 50V	C744	1-126-157-11	ELECT 10MF	20% 16V
C511	1-126-157-11	ELECT 10MF	20% 16V	C745	1-124-234-00	ELECT 22MF	20% 16V
C512	1-126-176-11	ELECT 220MF	20% 6.3V	C746	1-126-157-11	ELECT 10MF	20% 16V
C513	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C747	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C514	1-126-157-11	ELECT 10MF	20% 16V	C748	1-126-177-11	ELECT 100MF	20% 6.3V
C515	1-124-589-11	ELECT 47MF	20% 10V	C749	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V
C516	1-124-471-00	ELECT 1000MF	20% 6.3V	C750	1-126-176-11	ELECT 220MF	20% 6.3V
C518	1-126-157-11	ELECT 10MF	20% 16V	C753	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C519	1-126-157-11	ELECT 10MF	20% 16V	C754	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C520	1-126-157-11	ELECT 10MF	20% 16V	C755	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C625	1-126-373-11	ELECT 470MF	20% 10V	C756	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C700	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C757	1-124-589-11	ELECT 47MF	20% 16V
C701	1-163-118-00	CERAMIC CHIP 110PF	5% 50V	C758	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C702	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C759	1-124-234-00	ELECT 22MF	20% 16V
C703	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C760	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C704	1-126-301-11	ELECT 1MF	20% 50V	C762	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C705	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C763	1-163-227-11	CERAMIC CHIP 10PF	5% 50V
C706	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C764	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C707	1-126-163-11	ELECT 4.7MF	20% 25V	C765	1-126-163-11	ELECT 4.7MF	20% 25V
C708	1-126-301-11	ELECT 1MF	20% 50V				
C709	1-124-589-11	ELECT 47MF	20% 16V				
C710	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C711	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C712	1-163-133-00	CERAMIC CHIP 470PF	5% 50V				
C713	1-163-251-11	CERAMIC CHIP 100PF	5% 50V				
C714	1-124-234-00	ELECT 22MF	20% 16V				
C715	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C716	1-163-118-00	CERAMIC CHIP 110PF	5% 50V				
C717	1-163-103-00	CERAMIC CHIP 27PF	5% 50V				
C718	1-163-038-00	CERAMIC CHIP 0.1MF	25V				

CONNECTOR

CN001	1-506-469-11	PIN, CONNECTOR 4P
CN002	1-568-078-11	CONNECTOR (RECEPTALE) 18P
CN003	*1-564-006-21	PIN, CONNECTOR 7P
CN004	1-568-075-11	CONNECTOR (RECEPTALE) 12P
CN005	1-506-467-11	PIN, CONNECTOR 2P
CN006	1-506-467-11	PIN, CONNECTOR 2P
CN101	*1-564-317-11	PIN, BOARD TO BOARD 5P
CN102	*1-564-317-11	PIN, BOARD TO BOARD 5P

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>DIODE</u>							
D001	8-719-800-76	DIODE 1SS226		JR024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D002	8-719-400-18	DIODE MA152WK		JR025	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D250	8-719-800-76	DIODE 1SS226		JR026	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D300	8-719-118-21	DIODE 1SS283		JR027	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D301	8-719-118-21	DIODE 1SS283		JR028	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D400	8-719-400-18	DIODE MA152WK		JR029	1-216-296-00	METAL GLAZE 0 5% 1/8W	
D401	8-719-400-18	DIODE MA152WK		JR030	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D500	8-719-400-18	DIODE MA152WK		JR031	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D501	8-719-400-18	DIODE MA152WK		JR032	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>DELAY LINE</u>				JR033	1-216-295-00	METAL GLAZE 0 5% 1/10W	
DL300	1-415-593-11	DELAY LINE, ULTRASONIC GLASS		JR034	1-216-296-00	METAL GLAZE 0 5% 1/8W	
DL700	1-415-313-00	DELAY LINE (1H)		JR035	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>FILTER</u>				JR036	1-216-296-00	METAL GLAZE 0 5% 1/8W	
FL001	1-409-480-11	FILTER, TRAP		JR037	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL002	1-236-948-11	FILTER, LOW PASS		JR038	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL003	1-577-162-11	FILTER, CERAMIC		JR039	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>IC</u>				JR040	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC001	8-752-034-40	IC CXA1200BQ		JR041	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC400	8-752-031-49	IC CXA1203M		JR042	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC500	8-752-033-40	IC CXA1201Q		JR043	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC501	8-759-710-07	IC NJM2234M		JR044	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC701	8-752-035-00	IC CXA1227Q		JR045	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC702	8-752-034-04	IC CXA1219M		JR046	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<u>JUMPER RESISTOR</u>				JR047	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR048	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR002	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR049	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR003	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR050	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR051	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR005	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR052	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR006	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR053	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W		<u>COIL</u>			
JR008	1-216-295-00	METAL GLAZE 0 5% 1/10W		L003	1-408-978-21	INDUCTOR 47UH	
JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W		L004	1-408-974-21	INDUCTOR 22UH	
JR010	1-216-295-00	METAL GLAZE 0 5% 1/10W		L006	1-408-975-21	INDUCTOR 27UH	
JR011	1-216-296-00	METAL GLAZE 0 5% 1/8W		L007	1-408-976-21	INDUCTOR 33UH	
JR012	1-216-296-00	METAL GLAZE 0 5% 1/8W		L100	1-410-393-11	INDUCTOR CHIP 100UH	
JR013	1-216-296-00	METAL GLAZE 0 5% 1/8W		L101	1-410-393-11	INDUCTOR CHIP 100UH	
JR014	1-216-295-00	METAL GLAZE 0 5% 1/10W		L200	1-408-982-11	INDUCTOR 100UH	
JR015	1-216-296-00	METAL GLAZE 0 5% 1/8W		L201	1-408-984-21	INDUCTOR 150UH	
JR016	1-216-295-00	METAL GLAZE 0 5% 1/10W		L202	1-408-982-11	INDUCTOR 100UH	
JR017	1-216-296-00	METAL GLAZE 0 5% 1/8W		L203	1-408-969-21	INDUCTOR 8.2UH	
JR018	1-216-295-00	METAL GLAZE 0 5% 1/10W		L204	1-408-987-21	INDUCTOR 330UH	
JR019	1-216-296-00	METAL GLAZE 0 5% 1/8W		L205	1-408-983-21	INDUCTOR 120UH	
JR020	1-216-295-00	METAL GLAZE 0 5% 1/10W		L250	1-408-966-21	INDUCTOR 4.7UH	
JR021	1-216-295-00	METAL GLAZE 0 5% 1/10W		L251	1-408-989-21	INDUCTOR 470UH	
JR022	1-216-295-00	METAL GLAZE 0 5% 1/10W		L253	1-408-963-11	INDUCTOR 2.7UH	
JR023	1-216-295-00	METAL GLAZE 0 5% 1/10W		L254	1-408-985-21	INDUCTOR 180UH	
				L255	1-408-976-21	INDUCTOR 33UH	
				L257	1-408-970-21	INDUCTOR 10UH	
				L259	1-408-987-21	INDUCTOR 330UH	
				L260	1-408-982-11	INDUCTOR 100UH	
				L262	1-408-948-00	INDUCTOR 220UH	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description
L263	1-408-987-21	INDUCTOR 330UH
L300	1-408-982-11	INDUCTOR 100UH
L301	1-408-978-21	INDUCTOR 47UH
L303	1-408-970-21	INDUCTOR 10UH
L304	1-408-981-21	INDUCTOR 82UH
L306	1-408-968-21	INDUCTOR 6.8UH
L400	1-408-978-21	INDUCTOR 47UH
L500	1-408-982-11	INDUCTOR 100UH
L501	1-408-982-11	INDUCTOR 100UH
L700	1-408-969-21	INDUCTOR 8.2UH
L701	1-408-969-21	INDUCTOR 8.2UH
L702	1-408-971-21	INDUCTOR 12UH
L703	1-408-971-21	INDUCTOR 12UH
L704	1-408-970-21	INDUCTOR 10UH
L705	1-408-970-21	INDUCTOR 10UH
L706	1-408-982-11	INDUCTOR 100UH
L707	1-408-974-21	INDUCTOR 22UH
L708	1-408-968-21	INDUCTOR 6.8UH
L709	1-408-981-21	INDUCTOR 82UH
L710	1-408-982-11	INDUCTOR 100UH
L711	1-408-974-21	INDUCTOR 22UH
L713	1-408-979-21	INDUCTOR 56UH
L714	1-408-982-11	INDUCTOR 100UH
L715	1-408-979-21	INDUCTOR 56UH
L716	1-408-980-21	INDUCTOR 68UH
L717	1-408-979-21	INDUCTOR 56UH
L718	1-408-982-11	INDUCTOR 100UH
<u>VARIABLE COIL</u>		
LV700	1-408-530-00	COIL, VARIABLE
LV701	1-408-532-00	COIL, VARIABLE
LV702	1-408-532-00	COIL, VARIABLE
<u>IC LINK</u>		
PS300△	1-532-605-00	LINK, IC
<u>TRANSISTOR</u>		
Q003	8-729-100-66	TRANSISTOR 2SC1623
Q004	8-729-100-66	TRANSISTOR 2SC1623
Q005	8-729-100-66	TRANSISTOR 2SC1623
Q006	8-729-100-66	TRANSISTOR 2SC1623
Q007	8-729-901-01	TRANSISTOR DTC144EK
Q008	8-729-901-06	TRANSISTOR DTA144EK
Q009	8-729-100-66	TRANSISTOR 2SC1623
Q010	8-729-100-66	TRANSISTOR 2SC1623
Q011	8-729-216-22	TRANSISTOR 2SA1162
Q012	8-729-100-66	TRANSISTOR 2SC1623
Q013	8-729-100-66	TRANSISTOR 2SC1623
Q014	8-729-216-22	TRANSISTOR 2SA1162
Q015	8-729-100-66	TRANSISTOR 2SC1623
Q016	8-729-216-22	TRANSISTOR 2SA1162
Q017	8-729-216-22	TRANSISTOR 2SA1162

Remark	Ref.No	Part No.	Description	Remark
	Q018	8-729-901-06	TRANSISTOR DTA144EK	
	Q019	8-729-100-66	TRANSISTOR 2SC1623	
	Q020	8-729-100-66	TRANSISTOR 2SC1623	
	Q021	8-729-901-01	TRANSISTOR DTC144EK	
	Q022	8-729-100-66	TRANSISTOR 2SC1623	
	Q023	8-729-216-22	TRANSISTOR 2SA1162	
	Q024	8-729-901-01	TRANSISTOR DTC144EK	
	Q025	8-729-100-66	TRANSISTOR 2SC1623	
	Q026	8-729-100-66	TRANSISTOR 2SC1623	
	Q200	8-729-216-22	TRANSISTOR 2SA1162	
	Q201	8-729-901-01	TRANSISTOR DTC144EK	
	Q202	8-729-216-22	TRANSISTOR 2SA1162	
	Q203	8-729-216-22	TRANSISTOR 2SA1162	
	Q204	8-729-100-66	TRANSISTOR 2SC1623	
	Q205	8-729-100-66	TRANSISTOR 2SC1623	
	Q250	8-729-100-66	TRANSISTOR 2SC1623	
	Q251	8-729-100-66	TRANSISTOR 2SC1623	
	Q252	8-729-100-66	TRANSISTOR 2SC1623	
	Q254	8-729-901-06	TRANSISTOR DTA144EK	
	Q255	8-729-100-66	TRANSISTOR 2SC1623	
	Q256	8-729-216-22	TRANSISTOR 2SA1162	
	Q257	8-729-100-66	TRANSISTOR 2SC1623	
	Q258	8-729-100-66	TRANSISTOR 2SC1623	
	Q259	8-729-216-22	TRANSISTOR 2SA1162	
	Q260	8-729-100-66	TRANSISTOR 2SC1623	
	Q300	8-729-100-66	TRANSISTOR 2SC1623	
	Q301	8-729-100-66	TRANSISTOR 2SC1623	
	Q302	8-729-100-66	TRANSISTOR 2SC1623	
	Q303	8-729-100-66	TRANSISTOR 2SC1623	
	Q304	8-729-100-66	TRANSISTOR 2SC1623	
	Q305	8-729-100-66	TRANSISTOR 2SC1623	
	Q306	8-729-100-66	TRANSISTOR 2SC1623	
	Q307	8-729-100-66	TRANSISTOR 2SC1623	
	Q308	8-729-901-06	TRANSISTOR DTA144EK	
	Q309	8-729-140-96	TRANSISTOR 2SD774-34	
	Q310	8-729-100-66	TRANSISTOR 2SC1623	
	Q311	8-729-100-66	TRANSISTOR 2SC1623	
	Q312	8-729-100-66	TRANSISTOR 2SC1623	
	Q313	8-729-100-66	TRANSISTOR 2SC1623	
	Q400	8-729-901-01	TRANSISTOR DTC144EK	
	Q401	8-729-901-01	TRANSISTOR DTC144EK	
	Q402	8-729-901-01	TRANSISTOR DTC144EK	
	Q403	8-729-901-01	TRANSISTOR DTC144EK	
	Q404	8-729-901-06	TRANSISTOR DTA144EK	
	Q405	8-729-901-06	TRANSISTOR DTA144EK	
	Q500	8-729-901-01	TRANSISTOR DTC144EK	
	Q501	8-729-100-66	TRANSISTOR 2SC1623	
	Q502	8-729-119-78	TRANSISTOR 2SC2785-HFE	
	Q503	8-729-216-22	TRANSISTOR 2SA1162	
	Q504	8-729-901-06	TRANSISTOR DTA144EK	
	Q700	8-729-100-66	TRANSISTOR 2SC1623	
	Q703	8-729-100-66	TRANSISTOR 2SC1623	
	Q704	8-729-100-66	TRANSISTOR 2SC1623	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q705	8-729-216-22	TRANSISTOR 2SA1162		R053	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q706	8-729-100-66	TRANSISTOR 2SC1623		R054	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q707	8-729-100-66	TRANSISTOR 2SC1623		R055	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q708	8-729-100-66	TRANSISTOR 2SC1623		R057	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q900	8-729-901-01	TRANSISTOR DTC144EK		R058	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
Q901	8-729-216-22	TRANSISTOR 2SA1162		R059	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
Q902	8-729-901-01	TRANSISTOR DTC144EK		R060	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q903	8-729-901-06	TRANSISTOR DTA144EK		R061	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
RESISTOR				R062	1-216-041-00	METAL GLAZE 470 5%	1/10W
R001	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R064	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R002	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W	R065	1-216-021-00	METAL GLAZE 68 5%	1/10W
R003	1-216-127-11	METAL GLAZE 1.9M 5%	1/10W	R066	1-216-041-00	METAL GLAZE 470 5%	1/10W
R008	1-216-095-00	METAL GLAZE 82K 5%	1/10W	R067	1-216-295-00	METAL GLAZE 0 5%	1/10W
R009	1-216-663-11	METAL CHIP 3.3K 0.50%	1/10W	R068	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R012	1-216-045-00	METAL GLAZE 680 5%	1/10W	R069	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R013	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R070	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R016	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R071	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R017	1-216-031-00	METAL GLAZE 180 5%	1/10W	R072	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R018	1-216-025-00	METAL GLAZE 100 5%	1/10W	R073	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R019	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R074	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R020	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R075	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R021	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R076	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R022	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R077	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R023	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R078	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R024	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R079	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R025	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R080	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R026	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R081	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R027	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R082	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R028	1-216-651-11	METAL CHIP 1K 0.50%	1/10W	R200	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R029	1-216-643-11	METAL CHIP 470 0.50%	1/10W	R201	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R030	1-216-041-00	METAL GLAZE 470 5%	1/10W	R203	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R031	1-216-045-00	METAL GLAZE 680 5%	1/10W	R204	1-216-043-00	METAL GLAZE 560 5%	1/10W
R032	1-216-041-00	METAL GLAZE 470 5%	1/10W	R205	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R033	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R206	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R034	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R207	1-216-043-00	METAL GLAZE 560 5%	1/10W
R035	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R208	1-216-025-00	METAL GLAZE 100 5%	1/10W
R036	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R209	1-216-041-00	METAL GLAZE 470 5%	1/10W
R037	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R210	1-216-041-00	METAL GLAZE 470 5%	1/10W
R038	1-216-045-00	METAL GLAZE 680 5%	1/10W	R211	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R039	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R212	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R040	1-216-035-00	METAL GLAZE 270 5%	1/10W	R213	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R041	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W	R214	1-216-043-00	METAL GLAZE 560 5%	1/10W
R042	1-216-047-00	METAL GLAZE 820 5%	1/10W	R215	1-216-043-00	METAL GLAZE 560 5%	1/10W
R044	1-216-047-00	METAL GLAZE 820 5%	1/10W	R250	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R045	1-216-113-00	METAL GLAZE 470K 5%	1/10W	R251	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R046	1-216-295-00	METAL GLAZE 0 5%	1/10W	R252	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R047	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R253	1-216-043-00	METAL GLAZE 560 5%	1/10W
R048	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R254	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R049	1-216-025-00	METAL GLAZE 100 5%	1/10W	R255	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R050	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R256	1-216-047-00	METAL GLAZE 820 5%	1/10W
R051	1-216-029-00	METAL GLAZE 150 5%	1/10W	R257	1-216-043-00	METAL GLAZE 560 5%	1/10W
R052	1-216-121-00	METAL GLAZE 1M 5%	1/10W	R258	1-216-081-00	METAL GLAZE 22K 5%	1/10W
				R259	1-216-075-00	METAL GLAZE 12K 5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R260	1-216-033-00	METAL GLAZE	220 5% 1/10W	R329	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R261	1-216-021-00	METAL GLAZE	68 5% 1/10W	R330	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R262	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R331	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R263	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R332	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R264	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R333	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R265	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R335	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R266	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R337	1-216-295-00	METAL GLAZE	0 5% 1/10W
R267	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R338	1-216-048-00	METAL GLAZE	910 5% 1/10W
R268	1-216-039-00	METAL GLAZE	390 5% 1/10W	R339	1-216-295-00	METAL GLAZE	0 5% 1/10W
R269	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R342	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R270	1-216-295-00	METAL GLAZE	0 5% 1/10W	R343	1-216-039-00	METAL GLAZE	390 5% 1/10W
R271	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R344	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R273	1-216-045-00	METAL GLAZE	680 5% 1/10W	R345	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R274	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R346	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R275	1-216-033-00	METAL GLAZE	220 5% 1/10W	R347	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R276	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R348	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R277	1-216-295-00	METAL GLAZE	0 5% 1/10W	R349	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R278	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R400	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R279	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R401	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R281	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	R402	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R282	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R403	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R283	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R405	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R284	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R406	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R285	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R407	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R286	1-216-041-00	METAL GLAZE	470 5% 1/10W	R408	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R287	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R409	1-216-295-00	METAL GLAZE	0 5% 1/10W
R288	1-216-295-00	METAL GLAZE	0 5% 1/10W	R410	1-216-699-11	METAL CHIP	100K 0.50% 1/10W
R289	1-216-037-00	METAL GLAZE	330 5% 1/10W	R411	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R300	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R412	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R302	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R413	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R303	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R414	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R304	1-216-033-00	METAL GLAZE	220 5% 1/10W	R500	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R305	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R501	1-216-074-00	METAL GLAZE	11K 5% 1/10W
R306	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R506	1-216-699-11	METAL CHIP	100K 0.50% 1/10W
R307	1-216-041-00	METAL GLAZE	470 5% 1/10W	R507	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R308	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R508	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R309	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R509	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R310	1-216-034-00	METAL GLAZE	240 5% 1/10W	R510	1-216-022-00	METAL GLAZE	75 5% 1/10W
R311	1-216-046-00	METAL GLAZE	750 5% 1/10W	R511	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R312	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R512	1-216-295-00	METAL GLAZE	0 5% 1/10W
R313	1-216-041-00	METAL GLAZE	470 5% 1/10W	R513	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R314	1-216-039-00	METAL GLAZE	390 5% 1/10W	R516	1-216-020-00	METAL GLAZE	62 5% 1/10W
R318	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R517	1-249-406-11	CARBON	120 5% 1/4W
R319	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R518	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R320	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R519	1-216-295-00	METAL GLAZE	0 5% 1/10W
R321	1-216-041-00	METAL GLAZE	470 5% 1/10W	R520	1-216-295-00	METAL GLAZE	0 5% 1/10W
R322	1-216-027-00	METAL GLAZE	120 5% 1/10W	R521	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R323	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R525	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R324	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R700	1-216-039-00	METAL GLAZE	390 5% 1/10W
R325	1-216-041-00	METAL GLAZE	470 5% 1/10W	R701	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R326	1-216-037-00	METAL GLAZE	330 5% 1/10W	R702	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R327	1-216-047-00	METAL GLAZE	820 5% 1/10W	R703	1-216-039-00	METAL GLAZE	390 5% 1/10W
R328	1-216-037-00	METAL GLAZE	330 5% 1/10W	R704	1-216-039-00	METAL GLAZE	390 5% 1/10W

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R705	1-216-073-00	METAL GLAZE	10K	5%	1/10W		RV006	1-228-990-00	RES, ADJ, CARBON 1K				
R706	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W		RV007	1-228-990-00	RES, ADJ, CARBON 1K				
R707	1-216-039-00	METAL GLAZE	390	5%	1/10W		RV200	1-228-993-00	RES, ADJ, CARBON 4.7K				
R708	1-216-121-00	METAL GLAZE	1M	5%	1/10W		RV201	1-228-990-00	RES, ADJ, CARBON 1K				
R709	1-216-079-00	METAL GLAZE	18K	5%	1/10W		RV300	1-228-993-00	RES, ADJ, CARBON 4.7K				
R710	1-216-128-11	METAL GLAZE	2M	5%	1/10W		RV402	1-228-993-00	RES, ADJ, CARBON 4.7K				
R711	1-216-079-00	METAL GLAZE	18K	5%	1/10W		RV403	1-228-994-00	RES, ADJ, CARBON 10K				
R712	1-216-060-00	METAL GLAZE	3K	5%	1/10W		RV500	1-228-996-00	RES, ADJ, CARBON 47K				
R713	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W		RV700	1-228-996-00	RES, ADJ, CARBON 47K				
R714	1-216-049-00	METAL GLAZE	1K	5%	1/10W		RV701	1-228-994-00	RES, ADJ, CARBON 10K				
R715	1-216-060-00	METAL GLAZE	3K	5%	1/10W		RV702	1-228-994-00	RES, ADJ, CARBON 10K				
R716	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R717	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W				COIL				
R718	1-216-077-00	METAL GLAZE	15K	5%	1/10W		T200	1-409-466-11	TRAP				
R719	1-216-295-00	METAL GLAZE	0	5%	1/10W				CRYSTAL				
R720	1-216-295-00	METAL GLAZE	0	5%	1/10W		X001	1-577-117-21	VIBRATOR, CRYSTAL (4.43MHz)				
R721	1-216-295-00	METAL GLAZE	0	5%	1/10W		X700	1-577-117-21	VIBRATOR, CRYSTAL (4.43MHz)				
R722	1-216-041-00	METAL GLAZE	470	5%	1/10W								
R723	1-216-041-00	METAL GLAZE	470	5%	1/10W								
R724	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R726	1-216-685-11	METAL CHIP	27K	0.50%	1/10W								
R727	1-216-049-00	METAL GLAZE	1K	5%	1/10W		*A-7062-465-A	CC-56 BOARD, COMPLETE (Ref.No 2,000 Series)					
R728	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W								
R729	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W				CAPACITOR				
R730	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		C101	1-126-160-11	ELECT 1MF	20%	50V		
R736	1-216-049-00	METAL GLAZE	1K	5%	1/10W		C102	1-124-463-00	ELECT 0.1MF	20%	50V		
R738	1-216-041-00	METAL GLAZE	470	5%	1/10W		C103	1-164-232-11	CERAMIC CHIP 0.01MF		50V		
R739	1-216-043-00	METAL GLAZE	560	5%	1/10W		C104	1-124-239-00	ELECT 6.8MF	20%	10V		
R740	1-216-085-00	METAL GLAZE	33K	5%	1/10W		C105	1-164-232-11	CERAMIC CHIP 0.01MF		50V		
R741	1-216-081-00	METAL GLAZE	22K	5%	1/10W		C106	1-126-160-11	ELECT 1MF	20%	50V		
R742	1-216-045-00	METAL GLAZE	680	5%	1/10W		C107	1-124-239-00	ELECT 6.8MF	20%	10V		
R743	1-216-045-00	METAL GLAZE	680	5%	1/10W		C109	1-126-160-11	ELECT 1MF	20%	50V		
R744	1-216-049-00	METAL GLAZE	1K	5%	1/10W		C110	1-126-160-11	ELECT 1MF	20%	50V		

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
JR073	1-216-296-00	METAL GLAZE 0 5% 1/8W		C002	1-164-232-11	CERAMIC CHIP 0.01MF	50V
<u>RESISTOR</u>				C003	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
R101	1-216-031-00	METAL GLAZE 180 5% 1/10W		C004	1-126-153-11	ELECT 22MF	20% 6.3V
R102	1-216-031-00	METAL GLAZE 180 5% 1/10W		C005	1-126-153-11	ELECT 22MF	20% 6.3V
R103	1-216-081-00	METAL GLAZE 22K 5% 1/10W		C006	1-126-157-11	ELECT 10MF	20% 10V
R104	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C007	1-126-157-11	ELECT 10MF	20% 10V
R105	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W		C008	1-126-157-11	ELECT 10MF	20% 10V
R106	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C009	1-163-035-00	CERAMIC CHIP 0.047MF	50V
R107	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C010	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
R108	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C011	1-126-157-11	ELECT 10MF	20% 10V
R109	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		C012	1-163-035-00	CERAMIC CHIP 0.047MF	50V
R110	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C013	1-163-035-00	CERAMIC CHIP 0.047MF	50V
R111	1-216-081-00	METAL GLAZE 22K 5% 1/10W		C014	1-126-157-11	ELECT 10MF	20% 10V
R112	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C015	1-163-038-00	CERAMIC CHIP 0.1MF	25V
R113	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		C016	1-163-089-00	CERAMIC CHIP 6PF	0.5PF 50V
R115	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		C017	1-163-245-11	CERAMIC CHIP 56PF	5% 50V
R117	1-216-021-00	METAL GLAZE 68 5% 1/10W		C018	1-163-098-00	CERAMIC CHIP 16PF	5% 50V
R118	1-216-021-00	METAL GLAZE 68 5% 1/10W		C019	1-163-098-00	CERAMIC CHIP 16PF	5% 50V
R121	1-216-089-00	METAL GLAZE 47K 5% 1/10W		C020	1-163-038-00	CERAMIC CHIP 0.1MF	25V
R130	1-216-295-00	METAL GLAZE 0 5% 1/10W		C021	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
<u>SWITCH</u>				C023	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V
S101	1-570-865-11	SWITCH, SLIDE		C024	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V
S102	1-554-174-00	SWITCH, KEY BOARD		<u>FILTER</u>			
S104	1-554-174-00	SWITCH, KEY BOARD		CF001	1-567-132-00	VIBLATOR, CERAMIC (8MHz)	
S105	1-570-865-11	SWITCH, SLIDE		<u>CONNECTOR</u>			
S106	1-554-174-00	SWITCH, KEY BOARD		CN001	1-575-363-11	CONNECTOR, FPC/FFC 12P	
S107	1-554-174-00	SWITCH, KEY BOARD		CN002	1-575-364-11	CONNECTOR, FPC/FFC 14P	
S108	1-554-174-00	SWITCH, KEY BOARD		CN003	1-575-363-11	CONNECTOR, FPC/FFC 12P	
S109	1-554-174-00	SWITCH, KEY BOARD		CN004	1-575-361-11	CONNECTOR, FPC/FFC 9P	
S110	1-554-174-00	SWITCH, KEY BOARD		CN005	1-590-018-11	CONNECTOR, FPC/FFC 10P	
S111	1-554-174-00	SWITCH, KEY BOARD		<u>TRIMMER</u>			
S112	1-554-174-00	SWITCH, KEY BOARD		CT001	1-141-311-11	CAP, VAR, TRIMMER (CHIP)	
S113	1-554-174-00	SWITCH, KEY BOARD		<u>DIODE</u>			
S114	1-570-854-11	SWITCH, SLIDE		D001	8-719-918-96	DIODE AA3422S	
<u>VARIABLE RESISTOR</u>				D002	8-719-400-18	DIODE MA152WK	
VR101	1-241-207-11	RES, VAR, SLIDE 10K/10K		D003	8-719-301-49	DIODE SEL2810A	
VR102	1-238-374-11	RES, VAR, CARBON 10K/10K		D004	8-719-400-18	DIODE MA152WK	
*****				D005	8-719-920-05	DIODE SLP281C-50	
*A-7062-455-A FR-60 BOARD, COMPLETE (Ref.No 9,000 Series)				D006	8-719-400-18	DIODE MA152WK	
*****				D007	8-719-921-01	DIODE EBR5534S	
1-216-295-00 METAL GLAZE 0 5% 1/10W				D008	8-719-400-18	DIODE MA152WK	
*3-697-607-01 HOLDER (SU), LED				D010	8-719-400-18	DIODE MA152WK	
*3-742-524-11 HOLDER (LEFT), INDICATION TUBE				D011	8-719-921-01	DIODE EBR5534S	
*3-749-041-01 HOLDER (R), INDICATION TUBE				D012	8-719-920-05	DIODE SLP281C-50	
3-941-326-01 COVER, FR				D013	8-719-920-05	DIODE SLP281C-50	
<u>CAPACITOR</u>				D014	8-719-812-32	DIODE TLY123	
C001	1-126-154-11	ELECT 47MF 20% 6.3V		D015	8-719-920-05	DIODE SLP281C-50	
				D016	8-719-920-05	DIODE SLP281C-50	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
D017	8-719-301-49	DIODE SEL2810A		R021	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
D018	8-719-921-01	DIODE EBR5534S		R022	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
D020	8-719-918-96	DIODE AA3422S		R023	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
D021	8-719-812-33	DIODE TLG123A		R025	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
D022	8-719-908-54	DIODE SLR-54VC3		R026	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
<u>IC</u>				R027	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC001	8-759-998-91	IC BA6800AFVC		R028	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC002	1-466-131-21	IC GP1U52X		R029	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC003	8-759-937-56	IC S-8054ALB-LM-S		R030	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC004	8-759-941-78	IC S-8053ALB		R031	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC005	8-759-502-15	IC MB89793B-GDX451		R032	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
IC006	8-759-748-54	IC CAT35C202P		R033	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
<u>COIL</u>				R034	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
L001	1-407-169-XX	INDUCTOR 100UH		R035	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
L002	1-407-169-XX	INDUCTOR 100UH		R036	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
L003	1-407-169-XX	INDUCTOR 100UH		R037	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
<u>INDICATOR TUBE</u>				R038	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
N0001	1-519-507-31	INDICATOR TUBE, FLUORESCENT		R039	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
<u>TRANSISTOR</u>				R040	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
Q001	8-729-901-47	TRANSISTOR DTA143EK		R041	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
Q002	8-729-901-47	TRANSISTOR DTA143EK		R042	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
Q003	8-729-923-80	TRANSISTOR DTC143EK		R043	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
Q004	8-729-923-80	TRANSISTOR DTC143EK		R044	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q005	8-729-923-80	TRANSISTOR DTC143EK		R045	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
Q006	8-729-923-80	TRANSISTOR DTC143EK		R049	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
Q007	8-729-901-47	TRANSISTOR DTA143EK		R050	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
<u>RESISTOR</u>				R051	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R001	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W		R052	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R002	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W		R053	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R003	1-216-089-00	METAL GLAZE 47K 5% 1/10W		R054	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R004	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R055	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R005	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R056	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R006	1-216-089-00	METAL GLAZE 47K 5% 1/10W		R057	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R007	1-216-089-00	METAL GLAZE 47K 5% 1/10W		R058	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R008	1-216-035-00	METAL GLAZE 270 5% 1/10W		R059	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R009	1-216-035-00	METAL GLAZE 270 5% 1/10W		R060	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R010	1-216-031-00	METAL GLAZE 180 5% 1/10W		R061	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R011	1-216-035-00	METAL GLAZE 270 5% 1/10W		R062	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R012	1-216-115-00	METAL GLAZE 560K 5% 1/10W		R063	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R013	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R064	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R014	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R065	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R015	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R066	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R016	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R067	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R017	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R068	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R018	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R069	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R019	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R070	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R020	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R071	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
				R072	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
				R073	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
				R074	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
				R075	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
				R076	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
				R077	1-216-035-00	METAL GLAZE 270 5% 1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark				Ref.No	Part No.	Description	Remark			
R079	1-216-031-00	METAL GLAZE	180	5%	1/10W		S008	1-554-174-00	SWITCH, KEY BOARD				
R080	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		S009	1-554-174-00	SWITCH, KEY BOARD				
R081	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		S010	1-554-174-00	SWITCH, KEY BOARD				
R100	1-216-295-00	METAL GLAZE	0	5%	1/10W		S011	1-554-174-00	SWITCH, KEY BOARD				
R101	1-216-295-00	METAL GLAZE	0	5%	1/10W		S012	1-554-174-00	SWITCH, KEY BOARD				
R102	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S013	1-554-174-00	SWITCH, KEY BOARD				
R103	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S014	1-554-174-00	SWITCH, KEY BOARD				
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S015	1-554-174-00	SWITCH, KEY BOARD				
R106	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S016	1-554-174-00	SWITCH, KEY BOARD				
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S017	1-554-174-00	SWITCH, KEY BOARD				
R108	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S018	1-554-174-00	SWITCH, KEY BOARD				
R109	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S019	1-554-174-00	SWITCH, KEY BOARD				
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S020	1-554-174-00	SWITCH, KEY BOARD				
R111	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S023	1-554-174-00	SWITCH, KEY BOARD				
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S024	1-554-174-00	SWITCH, KEY BOARD				
R113	1-216-049-00	METAL GLAZE	1K	5%	1/10W		S025	1-570-865-11	SWITCH, SLIDE				
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R115	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R116	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R117	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R119	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R120	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R121	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R122	1-216-295-00	METAL GLAZE	0	5%	1/10W								
R123	1-216-295-00	METAL GLAZE	0	5%	1/10W								
R124	1-216-295-00	METAL GLAZE	0	5%	1/10W								
R125	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R126	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R127	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R128	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R129	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R130	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R131	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R132	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R133	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R150	1-216-035-00	METAL GLAZE	270	5%	1/10W								
R151	1-216-031-00	METAL GLAZE	180	5%	1/10W								
R152	1-216-035-00	METAL GLAZE	270	5%	1/10W								
R153	1-216-049-00	METAL GLAZE	1K	5%	1/10W								
R201	1-216-295-00	METAL GLAZE	0	5%	1/10W								
R203	1-216-089-00	METAL GLAZE	47K	5%	1/10W								
R204	1-216-089-00	METAL GLAZE	47K	5%	1/10W								
		SWITCH											
S001	1-554-174-00	SWITCH, KEY BOARD											
S002	1-554-174-00	SWITCH, KEY BOARD											
S003	1-554-174-00	SWITCH, KEY BOARD											
S004	1-554-174-00	SWITCH, KEY BOARD											
S005	1-554-174-00	SWITCH, KEY BOARD											
S006	1-554-174-00	SWITCH, KEY BOARD											
S007	1-554-174-00	SWITCH, KEY BOARD											

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C033	1-126-233-11	ELECT	22MF	20%	25V		
C042	1-136-161-00	MYLAR	0.047MF	10%	50V		
<u>CONNECTOR</u>							
CN001	1-563-605-11	CONNECTOR, FLEXIBLE 28P					
<u>DIODE</u>							
D002	8-719-400-18	DIODE MA152WK					
D003	8-719-200-36	DIODE E10QS04					
<u>IC</u>							
IC001	8-759-157-40	IC UPC574J					
<u>IF BLOCK</u>							
IF001	1-466-167-11	IF BLOCK (IFX-389C)					
<u>JUMPER RESISTOR</u>							
JR001	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR002	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR003	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR004	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR005	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR006	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR008	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR011	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR012	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR013	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR014	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR015	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR016	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR017	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR018	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR019	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR020	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR021	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR023	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR025	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR027	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR032	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR033	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR034	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR035	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR036	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR038	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR039	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR040	1-216-296-00	METAL GLAZE	0 5% 1/8W				
<u>COIL</u>							
L001	1-408-413-00	INDUCTOR	22UH				
L002	1-408-411-00	INDUCTOR	15UH				
L003	1-408-408-00	INDUCTOR	8.2UH				
L004	1-408-408-00	INDUCTOR	8.2UH				
L005	1-408-408-00	INDUCTOR	8.2UH				
L007	1-408-408-00	INDUCTOR	8.2UH				
L009	1-408-413-00	INDUCTOR	22UH				
				<u>DECORDER BLOCK</u>			
				MP001	1-466-144-11	DECORDER BLOCK (MPL-389)	
				<u>TRANSISTOR</u>			
				Q001	8-729-100-66	TRANSISTOR 2SC1623	
				Q003	8-729-216-22	TRANSISTOR 2SA1162	
				Q004	8-729-100-66	TRANSISTOR 2SC1623	
				Q006	8-729-100-66	TRANSISTOR 2SC1623	
				Q010	8-729-901-01	TRANSISTOR DTC144EK	
				Q014	8-729-216-22	TRANSISTOR 2SA1162	
				<u>RESISTOR</u>			
				R001	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R002	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R003	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R004	1-216-212-00	METAL GLAZE	3.9K 5% 1/8W
				R005	1-216-210-00	METAL GLAZE	3.3K 5% 1/8W
				R008	1-216-025-00	METAL GLAZE	100 5% 1/10W
				R009	1-216-070-00	METAL GLAZE	7.5K 5% 1/10W
				R010	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
				R011	1-216-037-00	METAL GLAZE	330 5% 1/10W
				R012	1-216-039-00	METAL GLAZE	390 5% 1/10W
				R013	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
				R014	1-216-121-00	METAL GLAZE	1M 5% 1/10W
				R015	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
				R016	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
				R017	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
				R018	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
				R021	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R022	1-216-748-11	METAL GLAZE	39K 5% 1/10W
				R023	1-216-091-00	METAL GLAZE	56K 5% 1/10W
				R024	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R025	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R029	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R034	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R044	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R047	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R065	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R067	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R068	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R069	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
				R070	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
				R072	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R073	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
				R076	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R077	1-216-064-00	METAL GLAZE	4.3K 5% 1/10W
				R078	1-216-049-00	METAL GLAZE	1K 5% 1/10W
				R079	1-216-089-00	METAL GLAZE	47K 5% 1/10W

When indicating parts by reference number, please include the board name.

TU-100**PC-50**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R080	1-216-089-00	METAL GLAZE 47K 5% 1/10W		C536	1-163-035-00	CERAMIC CHIP 0.047MF	50V
R083	1-216-049-00	METAL GLAZE 1K 5% 1/10W		C537	1-164-232-11	CERAMIC CHIP 0.01MF	50V
R090	1-216-089-00	METAL GLAZE 47K 5% 1/10W		C538	1-164-232-11	CERAMIC CHIP 0.01MF	50V
R092	1-216-295-00	METAL GLAZE 0 5% 1/10W		C539	1-164-232-11	CERAMIC CHIP 0.01MF	50V
R096	1-216-049-00	METAL GLAZE 1K 5% 1/10W		C540	1-164-232-11	CERAMIC CHIP 0.01MF	50V
VARIABLE RESISTOR				C542	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
RV001	1-228-995-00	RES, ADJ, CARBON 22K		C556	1-124-927-11	ELECT 4.7MF	20% 50V
TUNER				C557	1-164-232-11	CERAMIC CHIP 0.01MF	50V
TU001	1-465-260-11	TUNER, ET (BTP-2C401)		C558	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
*****				C601	1-126-176-11	ELECT 220MF	20% 6.3V
*A-7062-457-A PC-50 BOARD, COMPLETE (Ref.No 4,000 Series)				C602	1-126-176-11	ELECT 220MF	20% 6.3V
*****				C603	1-163-035-00	CERAMIC CHIP 0.047MF	50V
CAPACITOR				C604	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C152	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C611	1-124-791-11	ELECT 1MF	20% 50V
C401	1-126-233-11	ELECT 22MF	20% 25V	C612	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C402	1-126-233-11	ELECT 22MF	20% 25V	C613	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C403	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C614	1-124-791-11	ELECT 1MF	20% 50V
C404	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C615	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C407	1-163-093-00	CERAMIC CHIP 10PF	5% 50V	C616	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C408	1-163-093-00	CERAMIC CHIP 10PF	5% 50V	C617	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C409	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C618	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C410	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C619	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C411	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C620	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C412	1-124-126-00	ELECT 47MF	20% 10V	C621	1-126-176-11	ELECT 220MF	20% 6.3V
C413	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C623	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C414	1-124-443-00	ELECT 100MF	20% 6.3V	C624	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C420	1-126-233-11	ELECT 22MF	20% 25V	C625	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C421	1-126-233-11	ELECT 22MF	20% 25V	C626	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C501	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C627	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C502	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C628	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C503	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C629	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C504	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C630	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C505	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C631	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C506	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C632	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C507	1-124-239-00	ELECT 6.8MF	20% 25V	C633	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C508	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C634	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C510	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C635	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C516	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C636	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C517	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C640	1-126-157-11	ELECT 10MF	20% 16V
C518	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C641	1-124-126-00	ELECT 47MF	20% 10V
C519	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C642	1-124-126-00	ELECT 47MF	20% 10V
C520	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C643	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C521	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C644	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C522	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C645	1-163-124-00	CERAMIC CHIP 200PF	5% 50V
C523	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	C646	1-124-925-11	ELECT 2.2MF	20% 50V
C530	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C647	1-124-464-11	ELECT 0.22MF	20% 50V
C531	1-124-927-11	ELECT 4.7MF	20% 50V	C648	1-131-377-00	TANTALUM 10MF	10% 3.15V
C535	1-123-875-11	ELECT 10MF	20% 50V	C649	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
				C650	1-124-927-11	ELECT 4.7MF	20% 50V
				C651	1-124-126-00	ELECT 47MF	20% 10V
				C654	1-126-157-11	ELECT 10MF	20% 16V
				C656	1-124-126-00	ELECT 47MF	20% 10V
				C657	1-124-126-00	ELECT 47MF	20% 10V

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C658	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C763	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C659	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C764	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C660	1-163-124-00	CERAMIC CHIP 200PF	5% 50V	C765	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C661	1-124-925-11	ELECT 2.2MF	20% 50V	C766	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C662	1-124-464-11	ELECT 0.22MF	20% 50V	C767	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C663	1-131-377-00	TANTALUM 10MF	10% 3.15V	C768	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C664	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C769	1-124-443-00	ELECT 100MF	20% 6.3V
C665	1-124-927-11	ELECT 4.7MF	20% 50V	C771	1-124-126-00	ELECT 47MF	20% 10V
C666	1-124-126-00	ELECT 47MF	20% 10V	C772	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C669	1-124-443-00	ELECT 100MF	20% 6.3V	C773	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C671	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C775	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C672	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C801	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C673	1-123-875-11	ELECT 10MF	20% 50V	C802	1-124-443-00	ELECT 100MF	20% 6.3V
C674	1-123-875-11	ELECT 10MF	20% 50V	C803	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C703	1-123-875-11	ELECT 10MF	20% 50V	C804	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C704	1-126-157-11	ELECT 10MF	20% 16V	C805	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C705	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C806	1-124-791-11	ELECT 1MF	20% 50V
C706	1-124-443-00	ELECT 100MF	20% 6.3V	C807	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C707	1-124-443-00	ELECT 100MF	20% 6.3V	C808	1-124-902-00	ELECT 0.47MF	20% 50V
C708	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C809	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V
C710	1-124-443-00	ELECT 100MF	20% 6.3V	C810	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V
C712	1-126-157-11	ELECT 10MF	20% 16V	C811	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C713	1-126-157-11	ELECT 10MF	20% 16V	C812	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C714	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C813	1-124-443-00	ELECT 100MF	20% 6.3V
C715	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C814	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C716	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C815	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C717	1-124-443-00	ELECT 100MF	20% 6.3V	C816	1-124-925-11	ELECT 2.2MF	20% 50V
C731	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C817	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V
C734	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C818	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C735	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C819	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C736	1-124-443-00	ELECT 100MF	20% 6.3V	C821	1-124-791-11	ELECT 1MF	20% 50V
C737	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C822	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V
C739	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C823	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C740	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C824	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C741	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C825	1-162-587-11	CERAMIC CHIP 0.039MF	10% 25V
C742	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C826	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C743	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C827	1-163-020-00	CERAMIC CHIP 0.0082MF	10% 50V
C744	1-163-093-00	CERAMIC CHIP 10PF	5% 50V	C828	1-124-464-11	ELECT 0.22MF	20% 50V
C745	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C829	1-131-377-00	TANTALUM 10MF	10% 3.15V
C746	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C830	1-123-875-11	ELECT 10MF	20% 50V
C747	1-163-115-00	CERAMIC CHIP 82PF	5% 50V	C831	1-126-233-11	ELECT 22MF	20% 25V
C748	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C832	1-124-443-00	ELECT 100MF	20% 6.3V
C749	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C833	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C750	1-126-177-11	ELECT 100MF	20% 6.3V	C834	1-124-443-00	ELECT 100MF	20% 6.3V
C752	1-126-157-11	ELECT 10MF	20% 16V	C836	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C755	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C837	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C756	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C838	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V
C757	1-124-499-11	ELECT 1MF	20% 50V	C840	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C758	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V	C841	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C759	1-163-227-11	CERAMIC CHIP 10PF	5% 50V	C850	1-123-875-11	ELECT 10MF	20% 50V
C760	1-163-091-00	CERAMIC CHIP 8PF	0.25PF 50V	C851	1-123-875-11	ELECT 10MF	20% 50V
C761	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C852	1-123-875-11	ELECT 10MF	20% 50V
C762	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C854	1-123-875-11	ELECT 10MF	20% 50V

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C855	1-123-875-11	ELECT 10MF	20% 50V	C951	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C856	1-123-875-11	ELECT 10MF	20% 50V	C952	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C857	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C953	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C858	1-124-927-11	ELECT 4.7MF	50V	C954	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C859	1-124-126-00	ELECT 47MF	20% 10V	C955	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C860	1-123-875-11	ELECT 10MF	20% 50V	C956	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C861	1-123-875-11	ELECT 10MF	20% 50V	C957	1-123-875-11	ELECT 10MF	20% 50V
C862	1-124-126-00	ELECT 47MF	20% 10V	<u>CONNECTOR</u>			
C865	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	CN601	1-568-084-11	CONNECTOR (RECEPTALE) 30P	
C866	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	CN602	1-568-084-11	CONNECTOR (RECEPTALE) 30P	
C867	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V	CN603	1-506-477-11	PIN, CONNECTOR 12P	
C868	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V	CN604	1-506-470-11	PIN, CONNECTOR 5P	
C869	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	CN605	1-506-471-11	PIN, CONNECTOR 6P	
C870	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	CN606	1-506-468-11	PIN, CONNECTOR 3P	
C871	1-123-875-11	ELECT 10MF	20% 50V	CN701	1-506-468-11	PIN, CONNECTOR 3P	
C880	1-164-232-11	CERAMIC CHIP 0.01MF	50V	<u>TRIMMER</u>			
C901	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CV701	1-141-227-00	CAP, CERAMIC TRIMMER 20PF	
C902	1-124-443-00	ELECT 100MF	20% 6.3V	<u>DIODE</u>			
C903	1-164-232-11	CERAMIC CHIP 0.01MF	50V	D401	8-719-400-18	DIODE MA152WK	
C904	1-164-232-11	CERAMIC CHIP 0.01MF	50V	D501	8-719-104-34	DIODE 1S2836	
C905	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D502	8-719-400-18	DIODE MA152WK	
C906	1-124-791-11	ELECT 1MF	20% 50V	D503	8-719-800-76	DIODE 1SS226	
C907	1-163-137-00	CERAMIC CHIP 680PF	5% 50V	D610	8-719-104-34	DIODE 1S2836	
C908	1-124-902-00	ELECT 0.47MF	20% 50V	D702	8-719-400-18	DIODE MA152WK	
C909	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	D703	8-713-300-88	DIODE 1T33C-01	
C910	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V	D704	8-719-104-34	DIODE 1S2836	
C911	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	D850	8-719-104-34	DIODE 1S2836	
C912	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	D851	8-719-800-76	DIODE 1SS226	
C913	1-124-443-00	ELECT 100MF	20% 6.3V	D852	8-719-800-76	DIODE 1SS226	
C914	1-163-035-00	CERAMIC CHIP 0.047MF	50V	<u>FILTER</u>			
C915	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	FL601	1-236-043-11	FILTER, LOW PASS	
C916	1-124-925-11	ELECT 2.2MF	20% 50V	FL602	1-236-043-11	FILTER, LOW PASS	
C917	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V	FL801	1-236-551-11	BPF	
C919	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	FL901	1-236-550-11	BPF	
C921	1-124-791-11	ELECT 1MF	20% 50V	<u>IC</u>			
C922	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V	IC401	8-752-334-42	IC CXD2106Q	
C923	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	IC501	8-759-100-93	IC UPC393G2	
C924	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	IC602	8-759-111-56	IC UPC4572G2	
C925	1-162-587-11	CERAMIC CHIP 0.039MF	10% 25V	IC603	8-759-009-07	IC MC14053BF	
C926	1-163-137-00	CERAMIC CHIP 680PF	5% 50V	IC604	8-759-111-56	IC UPC4572G2	
C927	1-163-020-00	CERAMIC CHIP 0.0082MF	10% 50V	IC605	8-759-009-06	IC MC14052BF	
C928	1-124-464-11	ELECT 0.22MF	20% 50V	IC606	8-759-111-56	IC UPC4572G2	
C929	1-131-377-00	TANTALUM 10MF	10% 3.15V	IC607	8-759-111-56	IC UPC4572G2	
C930	1-123-875-11	ELECT 10MF	20% 50V	IC608	8-759-009-07	IC MC14053BF	
C931	1-126-233-11	ELECT 22MF	20% 25V	IC609	8-759-009-07	IC MC14053BF	
C932	1-124-443-00	ELECT 100MF	20% 6.3V	IC610	8-759-009-06	IC MC14052BF	
C933	1-163-035-00	CERAMIC CHIP 0.047MF	50V	IC611	8-759-009-06	IC MC14052BF	
C934	1-124-443-00	ELECT 100MF	20% 6.3V				
C936	1-163-123-00	CERAMIC CHIP 180PF	5% 50V				
C937	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V				
C938	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V				
C940	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C941	1-164-232-11	CERAMIC CHIP 0.01MF	50V				

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
IC612	8-759-009-07	IC MC14053BF		Q526	8-729-100-66	TRANSISTOR 2SC1623	
IC614	8-759-822-92	IC LA7451M		Q601	8-729-901-06	TRANSISTOR DTA144EK	
IC615	8-759-009-06	IC MC14052BF		Q602	8-729-116-05	TRANSISTOR 2SK160-K5	
IC701	8-752-322-57	IC CXD1077M		Q603	8-729-116-05	TRANSISTOR 2SK160-K5	
IC703	8-752-332-46	IC CXD1208Q		Q606	8-729-216-22	TRANSISTOR 2SA1162	
IC704	8-759-009-51	IC MC14538BF		Q607	8-729-216-22	TRANSISTOR 2SA1162	
IC705	8-759-927-98	IC MB8464-15LLPF		Q610	8-729-901-01	TRANSISTOR DTC144EK	
IC707	8-759-502-14	IC CF79050PV		Q611	8-729-100-66	TRANSISTOR 2SC1623	
IC708	8-752-010-20	IC CX20102		Q660	8-729-100-66	TRANSISTOR 2SC1623	
IC709	8-759-908-15	IC TL431CLP		Q703	8-729-100-66	TRANSISTOR 2SC1623	
IC801	8-752-033-01	IC CXA1237AR		Q705	8-729-100-66	TRANSISTOR 2SC1623	
IC850	8-759-111-56	IC UPC4572G2		Q706	8-729-100-66	TRANSISTOR 2SC1623	
IC901	8-752-033-01	IC CXA1237AR		Q707	8-729-100-66	TRANSISTOR 2SC1623	
IC902	8-759-009-06	IC MC14052BF		Q708	8-729-901-06	TRANSISTOR DTA144EK	
IC903	8-759-009-06	IC MC14052BF		Q709	8-729-100-66	TRANSISTOR 2SC1623	
IC904	8-759-111-56	IC UPC4572G2		Q720	8-729-901-01	TRANSISTOR DTC144EK	
IC905	8-759-111-56	IC UPC4572G2		Q721	8-729-901-01	TRANSISTOR DTC144EK	
IC906	8-759-111-56	IC UPC4572G2		Q801	8-729-901-01	TRANSISTOR DTC144EK	
<u>COIL</u>				Q802	8-729-901-01	TRANSISTOR DTC144EK	
L401	1-407-169-XX	INDUCTOR	100UH	Q840	8-729-100-66	TRANSISTOR 2SC1623	
L501	1-408-978-21	INDUCTOR	47UH	Q851	8-729-902-96	TRANSISTOR FMS1	
L702	1-408-970-21	INDUCTOR	10UH	Q852	8-729-904-04	TRANSISTOR FMS2	
L704	1-407-169-XX	INDUCTOR	100UH	Q853	8-729-100-66	TRANSISTOR 2SC1623	
L705	1-407-169-XX	INDUCTOR	100UH	Q854	8-729-100-66	TRANSISTOR 2SC1623	
L706	1-408-970-21	INDUCTOR	10UH	Q855	8-729-100-66	TRANSISTOR 2SC1623	
L707	1-408-970-21	INDUCTOR	10UH	Q856	8-729-100-66	TRANSISTOR 2SC1623	
L801	1-407-169-XX	INDUCTOR	100UH	Q901	8-729-901-01	TRANSISTOR DTC144EK	
L802	1-408-948-00	INDUCTOR	220UH	Q902	8-729-901-01	TRANSISTOR DTC144EK	
L901	1-407-169-XX	INDUCTOR	100UH	Q940	8-729-100-66	TRANSISTOR 2SC1623	
L902	1-408-948-00	INDUCTOR	220UH	<u>RESISTOR</u>			
<u>TRANSISTOR</u>				R150	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q501	8-729-100-66	TRANSISTOR 2SC1623		R151	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q502	8-729-901-01	TRANSISTOR DTC144EK		R155	1-216-295-00	METAL GLAZE 0 5%	1/10W
Q503	8-729-100-66	TRANSISTOR 2SC1623		R158	1-216-295-00	METAL GLAZE 0 5%	1/10W
Q504	8-729-902-XX	TRANSISTOR DTC114TK		R401	1-216-077-00	METAL GLAZE 15K 5%	1/10W
Q505	8-729-901-01	TRANSISTOR DTC144EK		R402	1-216-077-00	METAL GLAZE 15K 5%	1/10W
Q506	8-729-216-22	TRANSISTOR 2SA1162		R403	1-216-085-00	METAL GLAZE 33K 5%	1/10W
Q508	8-729-100-66	TRANSISTOR 2SC1623		R404	1-216-075-00	METAL GLAZE 12K 5%	1/10W
Q509	8-729-903-10	TRANSISTOR FMW1		R405	1-216-075-00	METAL GLAZE 12K 5%	1/10W
Q511	8-729-100-66	TRANSISTOR 2SC1623		R406	1-216-097-00	METAL GLAZE 100K 5%	1/10W
Q512	8-729-100-66	TRANSISTOR 2SC1623		R407	1-216-097-00	METAL GLAZE 100K 5%	1/10W
Q514	8-729-216-22	TRANSISTOR 2SA1162		R408	1-216-097-00	METAL GLAZE 100K 5%	1/10W
Q515	8-729-100-66	TRANSISTOR 2SC1623		R409	1-216-097-00	METAL GLAZE 100K 5%	1/10W
Q516	8-729-100-66	TRANSISTOR 2SC1623		R412	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q517	8-729-100-66	TRANSISTOR 2SC1623		R413	1-216-097-00	METAL GLAZE 100K 5%	1/10W
Q518	8-729-901-06	TRANSISTOR DTA144EK		R501	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q520	8-729-901-01	TRANSISTOR DTC144EK		R502	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q521	8-729-901-06	TRANSISTOR DTA144EK		R503	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q522	8-729-901-01	TRANSISTOR DTC144EK		R504	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
Q523	8-729-901-01	TRANSISTOR DTC144EK		R505	1-216-040-00	METAL GLAZE 430 5%	1/10W
Q524	8-729-100-66	TRANSISTOR 2SC1623		R506	1-216-031-00	METAL GLAZE 180 5%	1/10W
				R507	1-216-079-00	METAL GLAZE 18K 5%	1/10W

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R508	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R616	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R509	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R617	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R510	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R618	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R511	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R619	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R512	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R621	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R513	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R622	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R514	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R623	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R515	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	R624	1-216-025-00	METAL GLAZE	100 5% 1/10W
R516	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R625	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R517	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R626	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R519	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R627	1-216-033-00	METAL GLAZE	220 5% 1/10W
R520	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R628	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R523	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R629	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R524	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R630	1-216-025-00	METAL GLAZE	100 5% 1/10W
R526	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R631	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R529	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R632	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R530	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R633	1-216-033-00	METAL GLAZE	220 5% 1/10W
R531	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R634	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R532	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R635	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R533	1-216-041-00	METAL GLAZE	470 5% 1/10W	R636	1-216-025-00	METAL GLAZE	100 5% 1/10W
R534	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R637	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R535	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R638	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R536	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	R639	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R537	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R640	1-216-033-00	METAL GLAZE	220 5% 1/10W
R538	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R641	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R539	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R642	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R540	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R643	1-216-025-00	METAL GLAZE	100 5% 1/10W
R542	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R644	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R543	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R645	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R545	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R646	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R546	1-216-076-00	METAL GLAZE	13K 5% 1/10W	R647	1-216-033-00	METAL GLAZE	220 5% 1/10W
R548	1-216-076-00	METAL GLAZE	13K 5% 1/10W	R648	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R549	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R649	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R550	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R654	1-216-295-00	METAL GLAZE	0 5% 1/10W
R551	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R661	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R570	1-216-033-00	METAL GLAZE	220 5% 1/10W	R663	1-216-025-00	METAL GLAZE	100 5% 1/10W
R571	1-216-031-00	METAL GLAZE	180 5% 1/10W	R664	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R572	1-216-295-00	METAL GLAZE	0 5% 1/10W	R665	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R580	1-216-025-00	METAL GLAZE	100 5% 1/10W	R666	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R581	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R667	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R582	1-216-075-00	METAL GLAZE	12K 5% 1/10W	R668	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R583	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R670	1-216-039-00	METAL GLAZE	390 5% 1/10W
R584	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R671	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R585	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R672	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R586	1-216-041-00	METAL GLAZE	470 5% 1/10W	R677	1-216-025-00	METAL GLAZE	100 5% 1/10W
R607	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R678	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R608	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R679	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R609	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R680	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R610	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R681	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R611	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R682	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R612	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R689	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R613	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R690	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R614	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R691	1-216-077-00	METAL GLAZE	15K 5% 1/10W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R693	1-216-001-00	METAL GLAZE	10 5% 1/10W	R762	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R695	1-216-025-00	METAL GLAZE	100 5% 1/10W	R763	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R696	1-216-025-00	METAL GLAZE	100 5% 1/10W	R764	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R697	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R768	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R698	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R769	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R701	1-216-029-00	METAL GLAZE	150 5% 1/10W	R770	1-216-295-00	METAL GLAZE	0 5% 1/10W
R702	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R771	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R703	1-216-661-11	METAL CHIP	2.7K 0.50% 1/10W	R773	1-216-295-00	METAL GLAZE	0 5% 1/10W
R704	1-216-022-00	METAL GLAZE	75 5% 1/10W	R774	1-216-089-00	METAL GLAZE	4.7K 5% 1/10W
R705	1-216-039-00	METAL GLAZE	390 5% 1/10W	R775	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R706	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R776	1-216-089-00	METAL GLAZE	4.7K 5% 1/10W
R707	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R777	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R708	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R780	1-216-045-00	METAL GLAZE	680 5% 1/10W
R709	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R781	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R710	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	R782	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R712	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R783	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R713	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R784	1-216-025-00	METAL GLAZE	100 5% 1/10W
R714	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R785	1-216-025-00	METAL GLAZE	100 5% 1/10W
R715	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	R787	1-216-295-00	METAL GLAZE	0 5% 1/10W
R717	1-216-117-00	METAL GLAZE	680K 5% 1/10W	R788	1-216-295-00	METAL GLAZE	0 5% 1/10W
R718	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R789	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R720	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R790	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R721	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R791	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R723	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R792	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R724	1-216-295-00	METAL GLAZE	0 5% 1/10W	R793	1-216-001-00	METAL GLAZE	10 5% 1/10W
R725	1-216-295-00	METAL GLAZE	0 5% 1/10W	R794	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R726	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R797	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R727	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R798	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R729	1-216-295-00	METAL GLAZE	0 5% 1/10W	R799	1-216-029-00	METAL GLAZE	150 5% 1/10W
R730	1-216-295-00	METAL GLAZE	0 5% 1/10W	R801	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R732	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R802	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R734	1-216-295-00	METAL GLAZE	0 5% 1/10W	R803	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R736	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R804	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R738	1-216-017-00	METAL GLAZE	47 5% 1/10W	R805	1-216-295-00	METAL GLAZE	0 5% 1/10W
R739	1-216-645-11	METAL CHIP	560 0.50% 1/10W	R806	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R740	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R807	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R741	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R808	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R742	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	R809	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R746	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R810	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R748	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R811	1-216-107-00	METAL GLAZE	270K 5% 1/10W
R749	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R812	1-216-046-00	METAL GLAZE	750 5% 1/10W
R750	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R813	1-216-046-00	METAL GLAZE	750 5% 1/10W
R751	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R814	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R752	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R815	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R753	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R816	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R754	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R817	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R755	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R818	1-216-045-00	METAL GLAZE	680 5% 1/10W
R756	1-216-025-00	METAL GLAZE	100 5% 1/10W	R819	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R757	1-216-037-00	METAL GLAZE	330 5% 1/10W	R820	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R758	1-216-029-00	METAL GLAZE	150 5% 1/10W	R821	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R759	1-216-045-00	METAL GLAZE	680 5% 1/10W	R822	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R760	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R823	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R761	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R824	1-216-079-00	METAL GLAZE	18K 5% 1/10W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R827	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R911	1-216-107-00	METAL GLAZE 270K 5%	1/10W
R828	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R912	1-216-047-00	METAL GLAZE 820 5%	1/10W
R829	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R913	1-216-047-00	METAL GLAZE 820 5%	1/10W
R830	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R915	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R831	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W	R916	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R833	1-216-047-00	METAL GLAZE 820 5%	1/10W	R917	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R840	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R918	1-216-045-00	METAL GLAZE 680 5%	1/10W
R841	1-216-105-00	METAL GLAZE 220K 5%	1/10W	R919	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R842	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R920	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R850	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R921	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R851	1-216-043-00	METAL GLAZE 560 5%	1/10W	R922	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R852	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R923	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R853	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R924	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R854	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R927	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R855	1-216-043-00	METAL GLAZE 560 5%	1/10W	R928	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R856	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R929	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R857	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R930	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R858	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R931	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R859	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R933	1-216-047-00	METAL GLAZE 820 5%	1/10W
R860	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R940	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R861	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R941	1-216-105-00	METAL GLAZE 220K 5%	1/10W
R862	1-216-109-00	METAL GLAZE 330K 5%	1/10W	R942	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R863	1-216-121-00	METAL GLAZE 1M 5%	1/10W	R952	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R864	1-216-121-00	METAL GLAZE 1M 5%	1/10W	R953	1-216-074-00	METAL GLAZE 11K 5%	1/10W
R865	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R954	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R866	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R955	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R867	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R956	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R868	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R957	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R869	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R958	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R870	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R959	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R871	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R960	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R872	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R961	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R873	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R962	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R874	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R963	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R875	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R964	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R876	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R965	1-216-074-00	METAL GLAZE 11K 5%	1/10W
R877	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R966	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R878	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R967	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R879	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R968	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R880	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R969	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R881	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R970	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R885	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R971	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R886	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R972	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R901	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R973	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R902	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R984	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R903	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	VARIABLE RESISTOR			
R904	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	RV701	1-228-995-00	RES, ADJ, CARBON 22K	
R905	1-216-295-00	METAL GLAZE 0 5%	1/10W	RV702	1-228-995-00	RES, ADJ, CARBON 22K	
R906	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	RV703	1-228-999-00	RES, ADJ, CARBON 470K	
R907	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	RV705	1-228-999-00	RES, ADJ, CARBON 470K	
R908	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	RV707	1-228-991-00	RES, ADJ, CARBON 2.2K	
R909	1-216-049-00	METAL GLAZE 1K 5%	1/10W	RV801	1-228-994-00	RES, ADJ, CARBON 10K	
R910	1-216-121-00	METAL GLAZE 1M 5%	1/10W				

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
RV802	1-228-996-00	RES, ADJ, CARBON 47K		C030	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
RV901	1-228-994-00	RES, ADJ, CARBON 10K		C031	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
RV902	1-228-995-00	RES, ADJ, CARBON 22K		C032	1-126-301-11	ELECT 1MF	20% 50V
RV951	1-228-994-00	RES, ADJ, CARBON 10K		C033	1-126-301-11	ELECT 1MF	20% 50V
RV951	*3-710-578-01	COVER, VOLUME, 6 MOLD		C034	1-126-301-11	ELECT 1MF	20% 50V
RV952	1-228-995-00	RES, ADJ, CARBON 22K		C035	1-126-301-11	ELECT 1MF	20% 50V
RV952	*3-710-578-01	COVER, VOLUME, 6 MOLD		C036	1-126-177-11	ELECT 100MF	20% 6.3V
RV953	1-228-994-00	RES, ADJ, CARBON 10K		C037	1-126-177-11	ELECT 100MF	20% 6.3V
RV953	*3-710-578-01	COVER, VOLUME, 6 MOLD		C038	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
RV954	1-228-995-00	RES, ADJ, CARBON 22K		C039	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
RV954	*3-710-578-01	COVER, VOLUME, 6 MOLD		C040	1-126-301-11	ELECT 1MF	20% 50V
<u>CRYSTAL</u>				C041	1-126-177-11	ELECT 100MF	20% 6.3V
X401	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)		C042	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
*****				C043	1-126-301-11	ELECT 1MF	20% 50V
*A-7062-458-A ST-41 BOARD, COMPLETE (Ref.No 6,000 Series)				C044	1-126-157-11	ELECT 10MF	20% 16V
*****				C045	1-126-157-11	ELECT 10MF	20% 16V
<u>BUZZER</u>				C046	1-124-638-11	ELECT 22MF	20% 6.3V
BZ001	1-529-070-11	BUZZER		C047	1-124-638-11	ELECT 22MF	20% 6.3V
<u>CAPACITOR</u>				C050	1-124-471-00	ELECT 1000MF	20% 6.3V
C001	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	<u>FILTER</u>			
C002	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CF001	1-567-192-11	OSCILLATOR, CERAMIC	
C003	1-126-154-11	ELECT 47MF	20% 6.3V	CF002	1-567-192-11	OSCILLATOR, CERAMIC	
C004	1-161-772-11	CERAMIC 0.1MF	20% 25V	<u>CONNECTOR</u>			
C005	1-164-232-11	CERAMIC CHIP 0.01MF	50V	CN001	1-575-363-11	CONNECTOR, FPC/FFC 12P	
C006	1-124-261-00	ELECT 10MF	20% 50V	CN002	1-575-364-11	CONNECTOR, FPC/FFC 14P	
C007	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CN003	1-575-363-11	CONNECTOR, FPC/FFC 12P	
C008	1-164-232-11	CERAMIC CHIP 0.01MF	50V	CN004	1-506-482-11	PIN, CONNECTOR 3P	
C009	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CN005	1-506-471-11	PIN, CONNECTOR 6P	
C010	1-124-261-00	ELECT 10MF	20% 50V	CN006	1-506-470-11	PIN, CONNECTOR 5P	
C011	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CN008	*1-562-639-11	SOCKET, CONNECTOR 10P	
C012	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CN009	1-580-240-11	SOCKET, CONNECTOR 22P	
C013	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CN011	1-565-510-11	SOCKET, CONNECTOR 16P	
C014	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CN012	1-506-470-11	PIN, CONNECTOR 5P	
C015	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	CN013	1-590-019-11	CONNECTOR, FPC/FFC 5P	
C016	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V	CN014	1-506-474-11	PIN, CONNECTOR 9P	
C017	1-163-038-00	CERAMIC CHIP 0.1MF	25V	CN015	1-506-467-11	PIN, CONNECTOR 2P	
C018	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	<u>DIODE</u>			
C019	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	D001	8-719-400-18	DIODE MA152WK	
C020	1-163-038-00	CERAMIC CHIP 0.1MF	25V	D002	8-719-400-18	DIODE MA152WK	
C021	1-126-157-11	ELECT 10MF	20% 16V	D003	8-719-400-18	DIODE MA152WK	
C022	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	D025	8-719-911-19	DIODE 1SS119	
C023	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	<u>IC</u>			
C024	1-126-157-11	ELECT 10MF	20% 16V	IC001	8-759-152-52	IC UPD-75116	
C025	1-125-486-11	ELECT 0.22F	5.5V	IC002	8-759-147-30	IC UPD75004GB-VSX182	
C026	1-126-157-11	ELECT 10MF	20% 16V	IC003	8-759-030-60	IC SDA5642	
C027	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	IC004	8-759-932-54	IC MC14066BF	
C028	1-126-157-11	ELECT 10MF	20% 16V	IC005	8-759-990-07	IC TL1596CNS	
C029	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	IC006	8-759-111-56	IC UPC4572G2	
				IC007	8-759-111-56	IC UPC4572G2	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
IC008	8-759-111-56	IC UPC4572G2		JR50	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC009	8-759-111-56	IC UPC4572G2		JR51	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>JUMPER RESISTOR</u>				JR52	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR1	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR53	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR54	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR3	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR55	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR4	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR56	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR5	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR57	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR6	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR58	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR7	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR59	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR8	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR60	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR9	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR61	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR10	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR62	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR11	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR63	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR12	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR64	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR13	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR65	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR14	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR66	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR15	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR67	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR16	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR68	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR17	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR69	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR18	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR70	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR19	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR71	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR20	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR72	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR21	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR73	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR22	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR74	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR23	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR75	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR24	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR76	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR25	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR77	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR26	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR78	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR27	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR79	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR28	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR80	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR29	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR81	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR30	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR82	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR31	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR83	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR32	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR84	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR33	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR85	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR34	1-216-296-00	METAL GLAZE 0 5% 1/8W		JR86	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR35	1-216-296-00	METAL GLAZE 0 5% 1/8W		<u>COIL</u>			
JR36	1-216-296-00	METAL GLAZE 0 5% 1/8W		L001	1-408-421-00	INDUCTOR 100UH	
JR37	1-216-296-00	METAL GLAZE 0 5% 1/8W		L002	1-408-421-00	INDUCTOR 100UH	
JR38	1-216-296-00	METAL GLAZE 0 5% 1/8W		<u>TRANSISTOR</u>			
JR39	1-216-296-00	METAL GLAZE 0 5% 1/8W		Q001	8-729-901-04	TRANSISTOR DTA114EK	
JR40	1-216-296-00	METAL GLAZE 0 5% 1/8W		Q002	8-729-901-04	TRANSISTOR DTA114EK	
JR41	1-216-296-00	METAL GLAZE 0 5% 1/8W		Q003	8-729-100-66	TRANSISTOR 2SC1623	
JR42	1-216-296-00	METAL GLAZE 0 5% 1/8W		Q004	8-729-100-66	TRANSISTOR 2SC1623	
JR43	1-216-296-00	METAL GLAZE 0 5% 1/8W		Q005	8-729-100-66	TRANSISTOR 2SC1623	
JR44	1-216-296-00	METAL GLAZE 0 5% 1/8W		<u>RESISTOR</u>			
JR45	1-216-296-00	METAL GLAZE 0 5% 1/8W		R001	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
JR46	1-216-296-00	METAL GLAZE 0 5% 1/8W		R002	1-216-017-00	METAL GLAZE 47 5% 1/10W	
JR47	1-216-296-00	METAL GLAZE 0 5% 1/8W		R003	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
JR48	1-216-296-00	METAL GLAZE 0 5% 1/8W					
JR49	1-216-296-00	METAL GLAZE 0 5% 1/8W					

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R004	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R058	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R005	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R059	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W
R006	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R060	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R007	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R061	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R008	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R062	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R009	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R063	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R010	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R064	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R011	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R065	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R012	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R066	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R013	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R067	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R014	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R068	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R015	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R069	1-216-025-00	METAL GLAZE	100 5% 1/10W
R016	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R070	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R017	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R071	1-216-025-00	METAL GLAZE	100 5% 1/10W
R018	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R072	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R019	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R089	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R020	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R090	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R021	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R091	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R022	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R092	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R023	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R093	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R024	1-216-596-11	METAL GLAZE	2.7K 1% 1/10W	R094	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R025	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R095	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R026	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R096	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R027	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R097	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R028	1-216-089-00	METAL GLAZE	47K 5% 1/10W	*****			
R029	1-216-073-00	METAL GLAZE	10K 5% 1/10W	*1-636-959-11 RC-41 BOARD (Ref.No 7,000 Series)			
R030	1-216-073-00	METAL GLAZE	10K 5% 1/10W	*****			
R031	1-216-097-00	METAL GLAZE	100K 5% 1/10W	<u>CAPACITOR</u>			
R032	1-216-119-00	METAL GLAZE	820K 5% 1/10W	C001	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V
R033	1-216-066-00	METAL GLAZE	5.1K 5% 1/10W	C002	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
R034	1-216-119-00	METAL GLAZE	820K 5% 1/10W	C003	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
R035	1-216-025-00	METAL GLAZE	100 5% 1/10W	C004	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V
R036	1-216-121-00	METAL GLAZE	1M 5% 1/10W	C005	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V
R038	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C006	1-164-232-11	CERAMIC CHIP	0.01MF 50V
R039	1-216-025-00	METAL GLAZE	100 5% 1/10W	<u>JACK</u>			
R040	1-216-001-00	METAL GLAZE	10 5% 1/10W	CNJ101	1-561-534-41	SOCKET	21P
R041	1-216-025-00	METAL GLAZE	100 5% 1/10W	<u>DIODE</u>			
R042	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D001	8-719-106-43	DIODE	RD9.1M-B1
R043	1-216-105-00	METAL GLAZE	220K 5% 1/10W	D002	8-719-106-43	DIODE	RD9.1M-B1
R044	1-216-105-00	METAL GLAZE	220K 5% 1/10W	D003	8-719-106-43	DIODE	RD9.1M-B1
R045	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D004	8-719-106-43	DIODE	RD9.1M-B1
R046	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D005	8-719-106-43	DIODE	RD9.1M-B1
R047	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D006	8-719-106-43	DIODE	RD9.1M-B1
R048	1-216-025-00	METAL GLAZE	100 5% 1/10W	D007	8-719-106-43	DIODE	RD9.1M-B1
R049	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	D008	8-719-106-80	DIODE	RD13M-B2
R050	1-216-025-00	METAL GLAZE	100 5% 1/10W	<u>JUMPER RESISTOR</u>			
R051	1-216-073-00	METAL GLAZE	10K 5% 1/10W	JR001	1-216-295-00	METAL GLAZE	0 5% 1/10W
R052	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W				
R053	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W				
R054	1-216-083-00	METAL GLAZE	27K 5% 1/10W				
R055	1-216-081-00	METAL GLAZE	22K 5% 1/10W				
R056	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R057	1-216-097-00	METAL GLAZE	100K 5% 1/10W				

When indicating parts by reference number, please include the board name.

IN-40**RJ-20****RS-54****MC-60**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q002	8-729-901-00	TRANSISTOR DTC124EK		L704	1-410-392-11	INDUCTOR CHIP 82UH	
Q003	8-729-901-00	TRANSISTOR DTC124EK					
<u>RESISTOR</u>				<u>RESISTOR</u>			
R002	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R701	1-216-295-00	METAL GLAZE 0 5%	1/10W
R003	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R702	1-216-022-00	METAL GLAZE 75 5%	1/10W
R004	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	*****			
R005	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	*A-7062-464-A RS-54 BOARD, COMPLETE (Ref.No 6,000 Series)			
*****				<u>DIODE</u>			
*A-7062-463-A RJ-20 BOARD, COMPLETE (Ref.No 2,000 Series)				D505	8-719-106-43	DIODE RD9.1M-B1	
*****				D506	8-719-106-43	DIODE RD9.1M-B1	
*3-731-170-01 PLATE, GROUND, JACK				D507	8-719-106-43	DIODE RD9.1M-B1	
<u>CAPACITOR</u>				D508	8-719-106-43	DIODE RD9.1M-B1	
C701	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	<u>JUMPER RESISTOR</u>			
C702	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	JR032	1-216-295-00	METAL GLAZE 0 5%	1/10W
C711	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	JR033	1-216-295-00	METAL GLAZE 0 5%	1/10W
C712	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	JR076	1-216-296-00	METAL GLAZE 0 5%	1/8W
C713	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	<u>RESISTOR</u>			
C714	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	R503	1-216-081-00	METAL GLAZE 22K 5%	1/10W
C791	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	<u>SWITCH</u>			
C792	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	S501	1-571-880-11	SWITCH, SLIDE	
<u>JACK</u>				S502	1-570-157-51	SWITCH, SLIDE	
CNJ701	1-565-416-11	JACK, PIN 6P		S503	1-570-157-51	SWITCH, SLIDE	
<u>DIODE</u>				S504	1-570-157-51	SWITCH, SLIDE	
D701	8-719-106-80	DIODE RD13M-B2		*****			
D702	8-719-106-80	DIODE RD13M-B2		*A-7062-530-A MC-60 BOARD, COMPLETE (Ref.No 6,000 Series)			
D703	8-719-106-80	DIODE RD13M-B2		*****			
D704	8-719-106-80	DIODE RD13M-B2		1-216-295-00 METAL GLAZE 0 5% 1/10W			
D711	8-719-106-44	DIODE RD9.1M-B2		<u>CAPACITOR</u>			
D712	8-719-106-44	DIODE RD9.1M-B2		C601	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
D713	8-719-106-44	DIODE RD9.1M-B2		C602	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
D714	8-719-106-44	DIODE RD9.1M-B2		C603	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
D715	8-719-106-44	DIODE RD9.1M-B2		C604	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
D716	8-719-106-44	DIODE RD9.1M-B2		C605	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
D717	8-719-106-44	DIODE RD9.1M-B2		C606	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
D718	8-719-106-44	DIODE RD9.1M-B2		C608	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
D719	8-719-106-44	DIODE RD9.1M-B2		C609	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
D720	8-719-106-44	DIODE RD9.1M-B2		<u>DIODE</u>			
<u>JUMPER RESISTOR</u>				D601	8-719-106-45	DIODE RD9.1M-B3	
JR077	1-216-296-00	METAL GLAZE 0 5%	1/8W	D602	8-719-106-45	DIODE RD9.1M-B3	
JR078	1-216-296-00	METAL GLAZE 0 5%	1/8W	D604	8-719-106-45	DIODE RD9.1M-B3	
JR079	1-216-296-00	METAL GLAZE 0 5%	1/8W	D607	8-719-106-45	DIODE RD9.1M-B3	
<u>COIL</u>							
L701	1-410-392-11	INDUCTOR CHIP 82UH					
L702	1-410-392-11	INDUCTOR CHIP 82UH					
L703	1-410-392-11	INDUCTOR CHIP 82UH					

When indicating parts by reference number, please include the board name.

MC-60**UC-3****CC-23**

Ref.No Part No. Description Remark

JACK

J601 1-565-276-21 JACK, ULTRA SMALL 1P
J602 1-563-282-11 JACK, SMALL TYPE
J603 1-562-917-11 JACK (SMALL TYPE)

*1-628-908-11 UC-3 BOARD (Ref.No 3,000 Series)

CONNECTOR

CN001 1-566-529-11 CONNECTOR, FPC (ZIF) 13P
CN002 1-566-527-11 CONNECTOR, FPC (ZIF) 11P

JUMPER RESISTOR

JR001	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR002	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR003	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR004	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR005	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR006	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR008	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR009	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR010	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR011	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR012	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR013	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR019	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR022	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR023	1-216-296-00	METAL GLAZE	0	5%	1/8W

CONNECTOR

W001 1-574-353-11 CABLE, FLAT (1.0MM PITCH) 18P

*1-623-694-21 CC-23 BOARD (Ref.No 3,000 Series)

CONNECTOR

CN001 *1-562-880-21 CONNECTOR, CARD EDGE 15P

CONNECTOR

W001 1-574-354-11 CABLE, FLAT (1.0MM PITCH) 15P

Ref.No Part No. Description Remark

MISCELLANEOUS

A-7040-160-A MOTOR ASSY, THREADING
X-3731-108-1 MOTOR ASSY
1-238-738-11 RES, VAR, CARBON 10K
1-413-591-11 SWITCHING REGULATOR
1-466-328-31 MODULATOR, RF (RFU-2027)

1-590-016-11 CABLE, FLAT (1.0MM PITCH) 12 CORE
1-590-017-11 CABLE, FLAT (1.0MM PITCH) 14 CORE
8-835-331-01 MOTOR, DC U-22A

ACCESSORIES AND PACKING MATERIALS

Part No. Description Remark

1-465-577-11 REMOTE CONTROLLER (RMT-456)
1-551-086-31 CORD, CONNECTION (VIDEO CONNECTING)
1-551-513-00 CORD ASSY, COAXIAL
1-551-734-11 CORD, CONNECTION (RK-74H)
1-559-354-21 CORD, CONNECTION (DC IN)

1-559-533-11 CORD, CONNECTION
1-574-316-11 CORD, CONNECTION (LANC CABLE)
3-695-308-01 DRIVER, VOLUME
*3-677-503-00 SHEET, PROTECTION
*3-749-362-01 CUSHION (UPPER)

*3-749-363-01 CUSHION (LOWER)
3-752-141-11 MANUAL, INSTRUCTION (ENGLISH)
3-752-141-41 MANUAL, INSTRUCTION
(FRENCH/GERMAN/DUTCH/ITALIAN)
*3-940-439-11 INDIVIDUAL CARTON

HARDWARE LIST

PRECISION SCREW

7-627-553-37 PRECISION SCREW +P 2X3 TYPE 3
7-627-553-47 PRECISION SCREW +P 2X4 TYPE 3
7-627-555-88 PRECISION SCREW +P 1.4X1.8

SCREW

7-682-547-04 SCREW +BVT 3X6 (S)
7-685-646-79 SCREW +BTP 3X8 TYPE2 N-S
7-685-646-79 SCREW +BVT 3X8 TYPE2 IT-3
7-685-646-79 SCREW +BVT 3X8 TYPE2
7-685-647-79 SCREW +BVT 3X10 TYPE2 IT-3
7-685-647-79 SCREW +BVT 3X10 TYPE2

When indicating parts by reference number, please include the board name.

SECTION 8

MECHANICAL ADJUSTMENT

HOW TO ADJUST MECHANICAL UNIT

For the adjustment and checking of the mechanical unit and methods for replacing camera parts, see the separate 8 mm Video Mechanical Unit Adjustment Guide III U Mechanism (9-972-732-11).

However, see the following for the setting of track shift mode.

8-1. TAPE PASSING ADJUSTMENT (TRACK SHIFT)

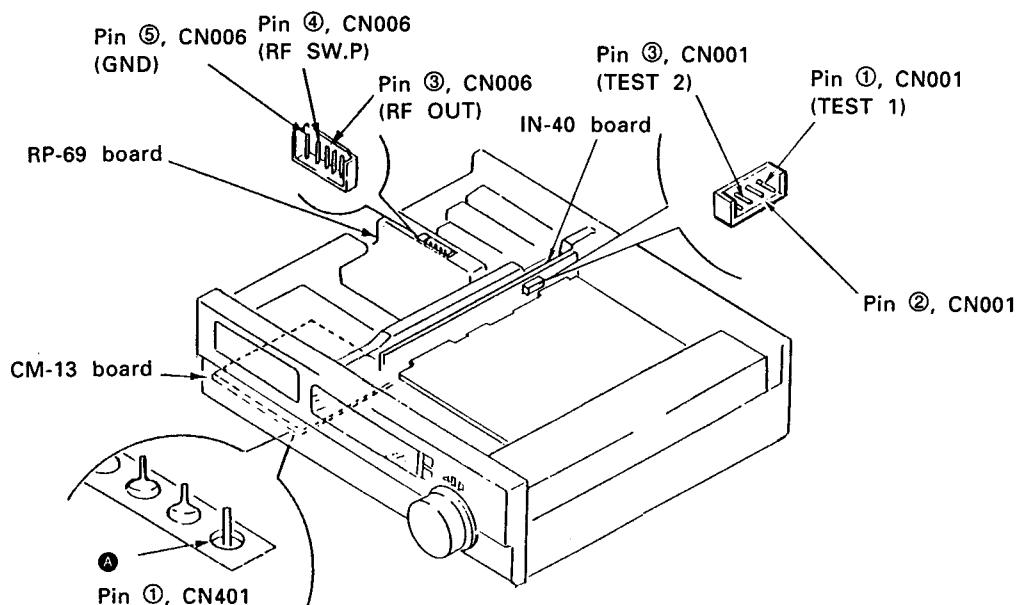
The 8 mm video system employs a ATF (automatic track finding) system with which tape running speed is instantaneously controlled and tracked at high accuracy based on four types of pilot signals. Thus, the tracking adjust knob is no longer required while realizing more precise tracing.

However, controlling of the tape pass system was rather difficult with the ATF system. This was because, even if tracing of the head was slightly deviated, the ATF could automatically compensate it, so complete adjustment was not possible.

To overcome such a trouble in finely adjusting to track, set up track shift mode and adjust it. Thus, the ATF is forcefully controlled to shift tracking quantity by a preset value (about 1/4). Therefore, fine adjustment of tracking can be operated easily. No tracking shift jig is required.

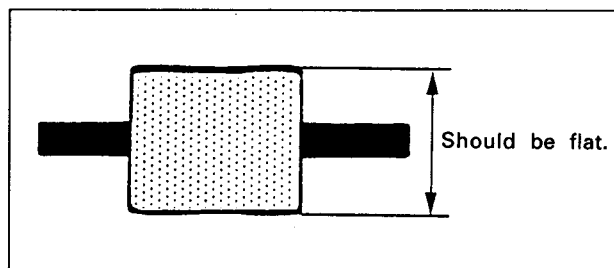
8-1-1. Setting of track shift mode

- 1) Remove the solder on Pin ① A of CM-13 board by ironing and evacuating, thus isolating the pin from the pattern and the land.
- 2) Connect Pin ②, CN001 on the IN-40 board to Pins ① and ③ of CN001 (Test 2).
- 3) Thus, track shift mode is actuated.



8-1-2. Adjustment preparation

- 1) Clean the tape running surface (tape guide, drum, capstan shaft, pinch roller).
- 2) Connect to the oscilloscope.
CH1: RP-69 board CN006 Pin ③ (PB RF)
CH2: RP-69 board CN006 Pin ④ (RF.SWP)
- 3) Replay the alignment tape (WR5-1NP) for tracking.
- 4) Check that the RF waveforms of the oscilloscope at both input and output sides are flat. If not flat, adjust the mechanical unit according to the separate manual U mechanical unit adjustment.
- 5) After completion of adjusting, solder Part A of Pin ① in the CM-13 board.



SECTION 9 ELECTRICAL ADJUSTMENT

For adjusting, see the layout view of parts to be adjusted shown on Page 194 and subsequent ones.

9-1. PREPARATION OF ELECTRICAL ADJUSTMENT

The following measuring equipment is used for electrical adjustments.

(Equipment to be Used)

- 1) Monitor TV
 - 2) Dual trace, oscilloscope having band of over 10MHz delay mode. (Use 10 : 1 probe unless otherwise specified)
 - 3) Frequency counter
 - 4) Pattern generator (equipped with video output terminal)
 - 5) Digital voltmeter
 - 6) Audio generator
 - 7) Audio level meter
 - 8) Audio distortion meter
 - 9) Audio attenuator
 - 10) Audio multiplex signal generator
 - 11) Alignment tapes
 - 12) Vectorscope
- Tracking adjustment (WR5-1CP)
Part code: 8-967-995-07
- Video frequency response adjustment (WR5-6C)
Part code: 8-967-995-17
- Normal mode operation checking
For SP (WR5-5CSP)
Part code: 8-967-995-46
- or (WR5-4SP)
Part code: 8-967-995-47
- For LP (WR5-4CL)
Part code: 8-967-995-56
- AFM Stereo operation checking
For SP (WRS-9CS)
Part code: 8-967-995-28

(Connection of Devices)

Connect measurement devices as follows for adjustment, unless otherwise redquired.

- Input select switchLINE position 1

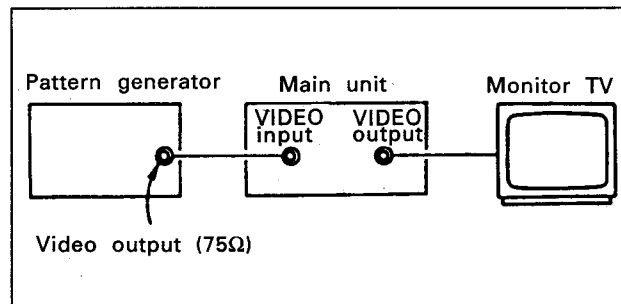


Fig. 9-1

Connect an oscilloscope to the video input terminal and confirm that the amplitude of the sync signal of the video signal is approximately 0.3V and the amplitude of the video section is approximately 0.7V. Confirm that the burst signal amplitude is approximately 0.3V and flat, and that the level ratio of the burst signal and red signal is 0.30 : 0.66. The video signal (color bars) used for adjustment are shown in Fig. 9.2.

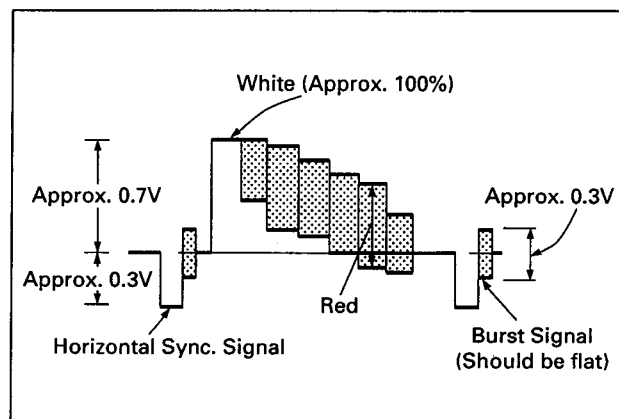


Fig. 9-2 Pattern generator color bar signal

The alignment tapes shown in the table below are available. Use the tape indicated in the signal column of each adjustment section.

When a specific name is not given for use of an operation checking tape, any of the operation checking tapes can be used.

(Alignment Tapes)

Name	Recording Mode	Tape Type	Tape Speed	Contents		Use
				Video Area	PCM Area	
Tracking WR5-1CP	STD	MP	SP	CH2: Signal for 1MHz tape path adjustment Marker (CH1: 9MHz) for switching position adjustment		Tape path adjustment Switching position adjustment
Video frequency response WR5-6C	STD	MP	SP	RF sweep 0~10MHz Markers 1, 3.58, 5.5, 7MHz		Frequency response adjustment
Operation checking WR5-4CSP or WR5-5CSP	STD	MP	SP	<ul style="list-style-type: none"> Video signals Color bars 4 minutes Monoscope 4 minutes Audio signal (AFM) 400Hz, 60% modulation 	<ul style="list-style-type: none"> Audio signals (PCM) Monoscope section 20Hz 20 seconds 400Hz 20 seconds 14kHz 20 seconds Color bar section 1kHz 4 minutes 	Operation checking
WR5-4CL	STD	MP	LP	<ul style="list-style-type: none"> Video signals Color bars 4 minutes Monoscope 4 minutes Audio signal (AFM) 400Hz, 60% modulation 		
WR5-9CS	STD	MP	SP	<ul style="list-style-type: none"> Video signals Color bars 4 minutes Monoscope 4 minutes Audio signal (AFM) Color bar part Lch: 400Hz L + R (1.5MHz±60kHz) Rch: 1kHz L - R (1.7MHz±30kHz) Monoscope part DEV + Bilingual (including a RF ID signal) 	Audio signals (PCM) 400Hz 8 minutes	

Note: Recording modes

STDConventional mode

Tape Types

MPMetal particle tape

The 100% color bar signal recorded on the alignment tape is shown in Fig. 9-3.

Note: Measured at VIDEO OUT terminal (terminated at 75Ω)

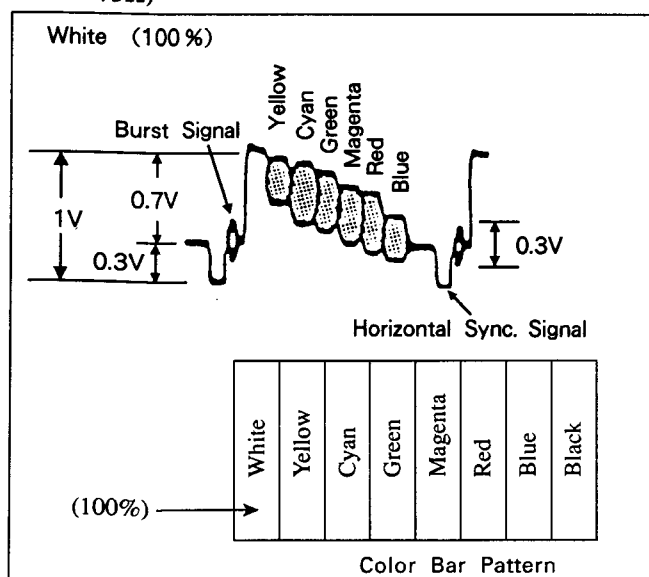


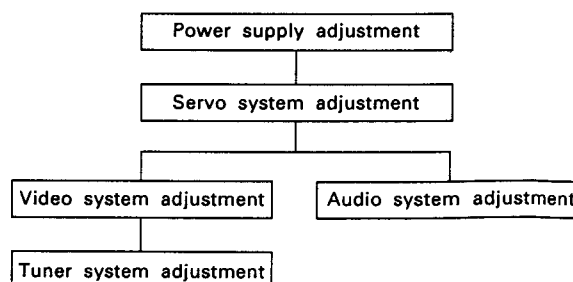
Fig. 9-3 Color bar signal on alignment tape

(I/O Level and Impedance)

Video input	Pin jack Input signal: 1Vp-p, 75Ω unbalanced, negative SYNC
Video output	Pin jack Output signal: 1Vp-p, 75Ω unbalanced, negative SYNC
Audio input	Pin jack Input level: -7.5dBs (0.775Vrms)
Audio output	Pin jack Rated output: -7.5dBs (with 47kΩ load) Output impedance: Less than 10kΩ

(Adjustment Order)

Perform adjustment in the following order



9-2. CHECKING OF VOLTAGES IN POWER SUPPLY (POWER BLOCK BOARD)

Measure voltages in playback mode.

Checking item	Measurement point	Specified value
1. UN + 5.7V	Pin ②, CN202 (Pin ①, CN202 connected to the negative side)	+5.7V ± 0.6 Vdc
2. UN - 30V	Pin ④, CN202	-30V ± 3 Vdc
3. DC OUT 7.5V	Pin ①, ②, CN203	+7.4V $^{+0.5}_{-0.4}$ Vdc
4. UN + 40V	Pin ①, CN201	+40V ± 2 Vdc
5. SW + 12V	Pin ②, CN201	+12V ± 0.5 Vdc
6. SW + 9V	Pin ③, CN201	+9V ± 0.3 Vdc
7. UN + 9V	Pin ④, CN201	+9.5V ± 0.5 Vdc
8. UN SW + 5.6V	Pin ⑥, CN201	+5.6 ± 0.2 Vdc
9. SW + 5V	Pin ⑦, ⑧, CN201	+5.2V $^{+0.3}_{-0.2}$ Vdc
10. UN SW - 5V	Pin ⑨, CN201	-5V ± 0.3 Vdc
11. SW - 5V	Pin ⑩, CN201	-5V ± 0.3 Vdc

9-3. ADJUSTMENT OF SYSTEM CONTROL CIRCUIT

9-3-1. Micon Oscillator Check (8MHz) (FR-60 Board)

Signal	Free
Measurement point	Pin ⑨, IC005
Instrument	Frequency counter
Specified value	8,050 ± 100 kHz

(Check Methods)

- 1) Check for 8,050 ± 100 kHz.

9-3-2. Tuner and Timer Micon Oscillator Check (32kHz) (FR-60 Board)

Mode	EE
Signal	Free
Measurement point	Pin ⑧ IC005 (BUZZER OUT)
Instrument	Frequency counter
Adjustment element	CT001
Specified value	4,096 ± 0.015 Hz *Note

(Check Methods)

- 1) Adjust the frequency at Pin ⑧, IC005 to 4,096 ± 0.015 Hz using CT001.

* **Note:** The frequency of 32kHz is divided in the IC.

9-3-3. Mode Control Micon Oscillator Check (ST-41 Board)

Mode	EE
Signal	Free
Measurement point	Pin ⑧, IC001
Instrument	Frequency counter
Specified value	4.00 ± 0.04 MHz

(Check Methods)

- 1) Check for 4.00 ± 0.04 MHz.

9-4. ADJUSTMENT OF SERVO SYSTEM

9-4-1. Oscillation Frequency Adjustment (CM-13 Board)

Mode	Record
Signal	Free
Measurement point	Pin ⑦, IC502
Instrument	Frequency counter
Adjustment element	RV501
Specified value	476.54 ± 5.0 kHz

(Adjustment Methods)

- 1) Set oscillation frequency to 476.54 ± 5.0 kHz using RV501.

9-4-2. Switching Position Adjustment (CM-13 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-ICP)
Measurement points	CH-1: Pin ③, IC201 (VIDEO OUT) CH-2: Pin ⑩, IC401 (RF SWP)
Instrument	Oscilloscope
Adjustment element	RV401
Specified value	0 ± 10 μs

(Adjustment Methods)

- 1) Connect Pins ② and ③ of CN001 in the IN-40 board (test 2 MODE)
- 2) Adjust with RV401 so that the marker of the RF CH 2 waveform is lined up with the falling edge of the RF SWP waveform.

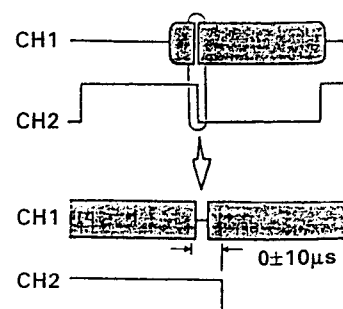


Fig. 9-4. Switching position adjustment

9-4-3. PB SP/LP Adjustment (CM-13 Board)

Mode	Variable speed playback (CUE)
Signal	Alignment tape: For operation check (SP mode: WR5-4CSP or another) (LP mode: WR5-4CL or another)
Measurement point	Pins ② and ③, IC302
Instrument	digital voltmeter
Adjustment element	RV301
Specified value	$\frac{(V_S + V_L)}{2}$

(Adjustment Methods)

- 1) Set S110 (SP/LP) to LP and playback the tape for SP mode (WR5-4CSP) in CUE mode.
- 2) Measure the voltage at Pin ② of IC301 at that time, using the digital voltmeter and store. (V_S)
- 3) Set S110 (SP/LP) to SP and playback the tape for LP mode (WR5-4CL) in FF mode.
- 4) Measure the voltage at Pin ③ of IC201 at that time, using the digital voltmeter and store. (V_L)
- 5) Adjust RV301 so that voltages at Pins ② and ③ of IC302 are $\frac{(V_S + V_L)}{2}$.

9-4-4. Capstan FG Adjustment (CM-13 Board)

Mode	REC SP (or LP)
Signal	Free
Measurement point	Pin ⑩, IC201
Instrument	Oscilloscope
Adjustment element	RV201
Specified value	Duty 50% \pm 5%

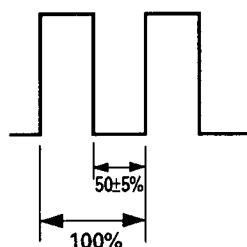


Fig. 9-5

9-5. ADJUSTMENT OF VIDEO SYSTEM

As a rule, video system adjustment should be performed in accordance with the following order. The color video signal supplied from the pattern generator is used as video input signal for video system adjusting in the recording mode. Confirm that the SYNC signal and color burst signal conform to the set-up specifications during adjustment as shown in Fig. 9-2.

(Adjusting Order)

1. Playback frequency characteristics adjustment
2. Flying erase check
3. Crystal oscillator fo check
4. SYNC AGC adjustment
5. Y/C separation adjustment
6. Burst frag adjustment
7. Emphasis Input adjustment
8. PB CCD Input level adjustment
9. PB Y level adjustment
10. Y FM carrier frequency adjustment
11. Y FM deviation adjustment
12. AC clip check
13. Chroma Emphasis fo adjustment
14. REC Y level adjustment
15. REC C level adjustment
16. Qvasi burst phase adjustment
17. Delay burst phase adjustment
18. REC ATF level confirmation

9-5-1. Playback Frequency Characteristics Adjustment (RP-69 Board)

1. Adjustment of CH1 and CH2

The adjustment element for CH2 is shown in ().

Mode	Playback
Signal	Alignment tape: For adjusting frequency characteristics (WR5-6C)
Measurement point	Pin ③, CN006 External trigger: Pin ④, CN006 Trigger slope: - (+)
Instrument	Oscilloscope
Adjustment element	RV004 (RV003)
Specified value	5.5MHz level: 3.58MHz level = 3 : 4

(Adjustment Methods)

- 1) Adjust RV004 and RV003 so that the ratio of 3.58MHz level and 5.5MHz level is 4 : 3 (4 : 3).

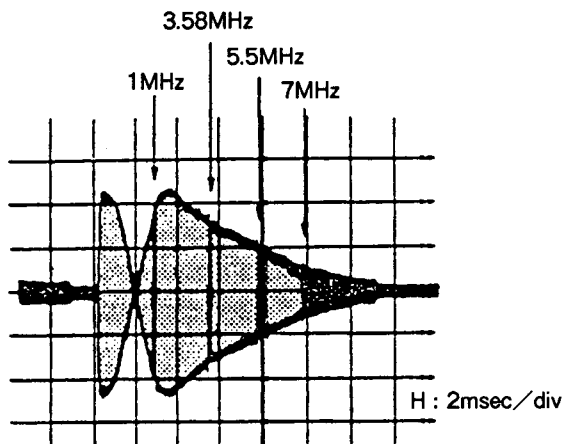


Fig. 9-6 Playback frequency characteristics adjustment

2. Adjustment of CH1'

Mode	Playback pause
Signal	Alignment tape: For adjusting frequency characteristics (WR5-6C)
Measurement point	Pin ①, CN006 External trigger: Pin ④, CN006 Trigger slope: +
Instrument	Oscilloscope
Adjustment element	RV201
Specified value	Ratio of 3.58MHz level to that of 5.5MHz is 4 : 3.5

(Adjustment Methods)

- 1) Connect pins ② and ③ of CN001 in IN-40 board. (Test 2 MODE)
- 2) Adjust RV201 so that the ratio of 5.5MHz level to that of 3.58MHz becomes 4 : 3.5.

9-5-2. Flying Erase Check (RP-69 Board)

Mode	Recording
Signal	Arbitrary
Measurement point	Pin ②, CN001
Instrument	Frequency counter and oscilloscope
Specified value	Frequency: $8.3 \pm 0.5\text{MHz}$
Specified value	Voltage: Approx. 8Vp-p or more

Note: 1) Use an MP type tape.

- 2) Connect the frequency counter via a buffer amplifier (oscilloscope or the like) with a high input impedance ($1\text{M}\Omega$ or more) and low capacitance (10pF or less).

(Check Methods)

- 1) Check for $8.3 \pm 0.5\text{MHz}$ and about 5.0Vp-p.

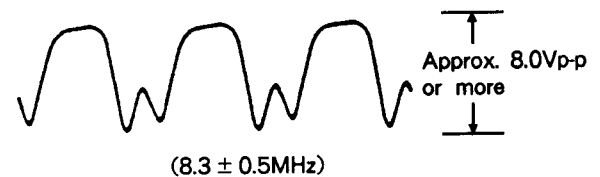


Fig. 9-7 Flying erase check

9-5-3. Crystal Oscillator f_0 Check (VI-98 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-3CSP)
Measurement point	Pin ⑩, IC001
Instrument	Frequency counter
Specified value	$4433619 \pm 150\text{Hz}$

Note: Connect the frequency counter via a buffer of high impedance (approx. $10\text{M}\Omega$) and low capacitance (less than 10pF).

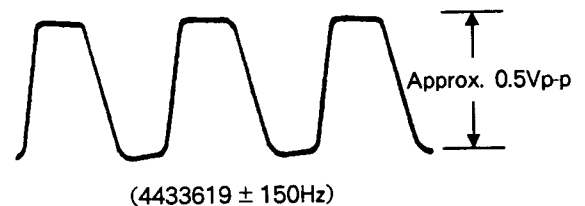


Fig. 9-8 Crystal oscillator f_0 check

9-5-4. SYNC AGC Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ⑤ of IC001
Measuring instrument	Oscilloscope
Adjusting element	RV500
Specified value	$0.5 \pm 0.02V_{p-p}$

Note: VIDEO OUT terminal (CNJ701 on RJ-20 board) should be terminated with 75Ω .

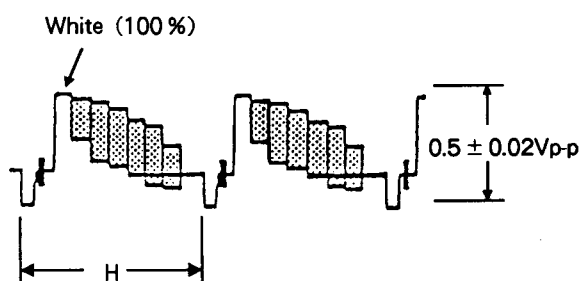


Fig. 9-9 SYNC AGC adjustment

9-5-5. Y/C Separation Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ⑤ of IC001
Measuring instrument	Oscilloscope
Adjusting element	RV001
Specified value	Under $150m V_{p-p}$ (residual chroma component)

(Adjustment Method)

- 1) Adjust RV001 so as to minimize the residual chroma component.

Residual chroma component
(minimize amplitude of this section)

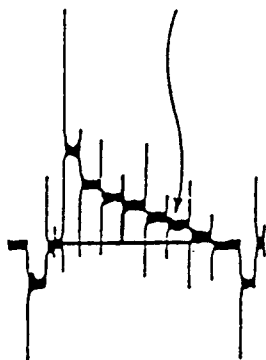


Fig. 9-10 Y/C separation adjustment

9-5-6. Burst Frag Adjustment (VI-98 Board)

Mode	Recording
Signal	Color bar
Measurement point	CH1: Pin ⑤ of IC001 (REC C RF OUT) CH2: Pin ⑧ of IC001 (BF OUT)
Measuring instrument	Oscilloscope
Adjusting element	RV002
Specified value	$a = b$ (Refer to Fig. 9-11.)

(Adjusting Method)

- 1) Use RV002 to match the falling edge of the CH2 burst pulse to the center of the CH1 burst signal.

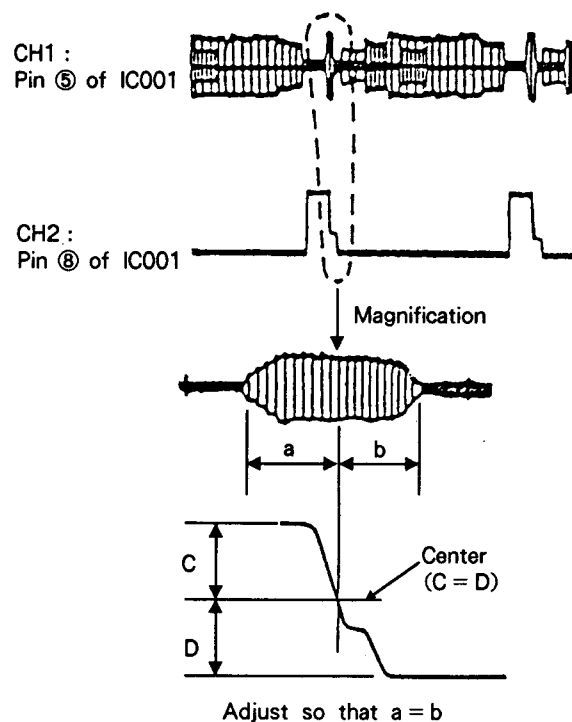


Fig. 9-11 Burst frag

9-5-7. Emphasis Input Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ③ of IC001
Measuring instrument	Oscilloscope
Adjusting element	RV003
Specified value	$0.50 \pm 0.02V_{p-p}$

(Adjusting Method)

- 1) Adjust to $0.50 \pm 0.02V_{p-p}$ with RV003.

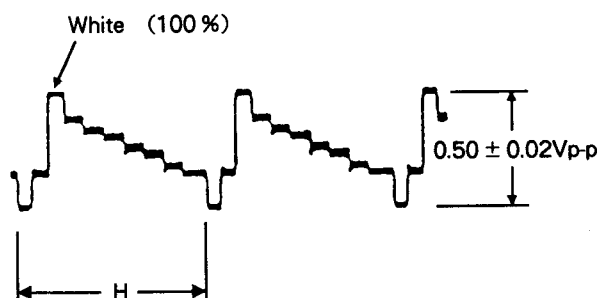


Fig. 9-12 Emphasis input level adjustment

9-5-8. PB CCD Input Level Adjustment (VI-98 Board)

Mode	Playback
Signal	Alignment tape for operation confirmation (WR5-3CSP) color bar section
Measurement point	Pin ④ of IC001
Measuring instrument	Oscilloscope
Adjusting element	RV006
Specified value	$0.50 \pm 0.02V_{p-p}$

(Adjusting Method)

- 1) Adjust to $0.50 \pm 0.02V_{p-p}$ with RV006.

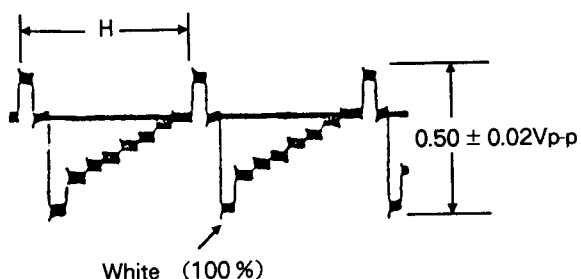


Fig. 9-13 PB CCD input level adjustment

9-5-9. PB Y Level Adjustment (VI-98 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP) Color bar section
Measurement point	Pin ③ of CN001
Measuring instrument	Oscilloscope
Adjusting element	RV007
Specified value	$1.00 \pm 0.05V_{p-p}$

Note: 1) The VIDEO OUT terminal (CN701 on the RJ-20 board) must be terminated in 75Ω .

(Adjusting Method)

- 1) Adjust to $1.00 \pm 0.05V_{p-p}$ with RV007.

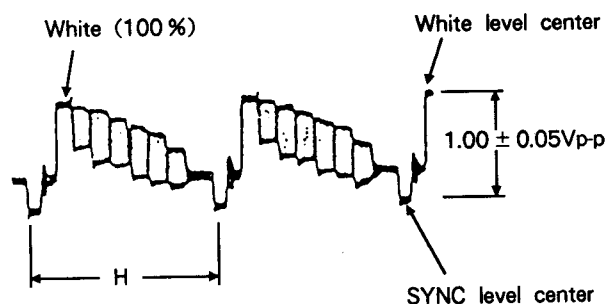


Fig. 9-14 PB Y level adjustment

9-5-10. Y FM Carrier Frequency Adjustment (VI-98 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Pin ③ of IC001
Measuring instrument	Frequency counter
Adjusting element	RV005
Specified value	$4.38 \pm 0.02MHz$

(Adjusting Method)

- 1) Adjust to $4.38 \pm 0.02MHz$ with RV005.
- 2) Perform "Deviation Adjustment" and "Emphasis Adjustment" after this adjustment.



Fig. 9-15 Y FM carrier frequency adjustment

9-5-11. Y FM Deviation Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ③ of CN001: VIDEO OUT
Measuring instrument	Oscilloscope
Adjusting element	RV004
Specified value	Playback level: $1.00 \pm 0.05V_{p-p}$

- Note:** 1) "PB Y Level Adjustment" and "Y FM Carrier Frequency Adjustment" should have been completed.
 2) VIDEO OUT terminal (CNJ701 on RJ-20 board) should be terminated with 75Ω .
 3) EDIT switch (S013 on FR-60 board) should be turned OFF.

(Adjusting Method)

- Record color bar signal.
- Play back the recorded signal.
- Confirm the playback output level.
Specified value: $1.00 \pm 0.05V_{p-p}$.
- If the specified value is not satisfied, repeat steps 1) to 3) after turning RV004 as shown in the table below.

	RV004 turning direction
When larger than specified value	Clock wise (\curvearrowright)
When smaller than specified value	Counter clock wise (\curvearrowleft)

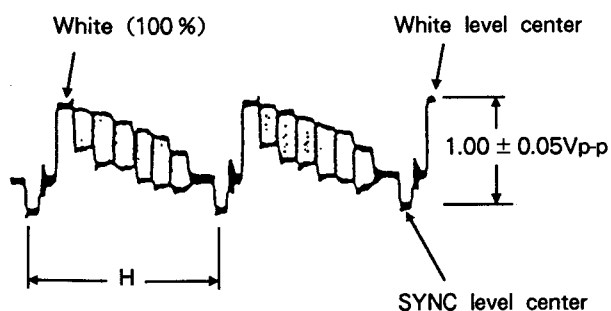


Fig. 9-16 Y FM deviation adjustment

9-5-12. AC Clip Check (VI-98 Board)

Mode	Recording
Signal	Color bar
Measurement point	Pin ③ of IC001
Measuring instrument	Oscilloscope
Specified value	$240 \pm 10\%$

(Adjusting Method)

- Confirm that the white (100%) peak of the waveform output from pin ③ of IC001 is $240 \pm 10\%$.

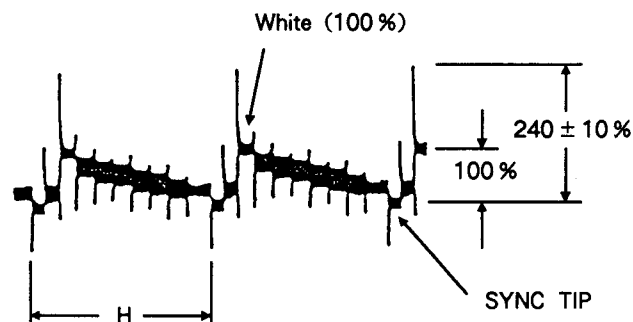


Fig. 9-17 AC clip check

9-5-13. Chroma Emphasis fo Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ③ of IC001
Measuring instrument	Oscilloscope
Adjusting element	FL002
Specified value	Minimum fo component

(Adjusting Method)

- Adjust FL002 so that the amplitude of the flat section of the red portion become minimum.

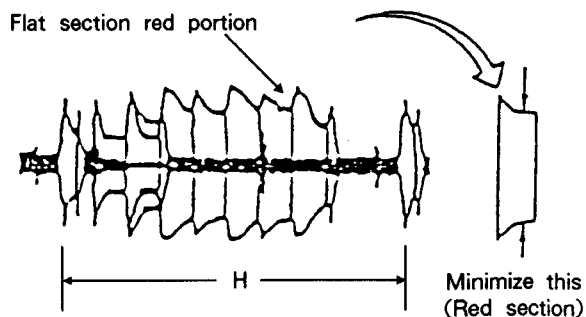


Fig. 9-18 Chroma emphasis fo adjustment

9-5-14. REC Y Level Adjustment (VI-98 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Pin ② of CN003
Measuring instrument	Oscilloscope
Adjusting element	RV200
Specified value	$0.31 \pm 0.01V_{p-p}$

9-5-15. REC C Level Adjustment (VI-98 Board)

Mode	E-E
Signal	Color bar
Measurement point	Pin ③ of CN003
Measuring instrument	Oscilloscope
Adjusting element	RV201
Specified value	$150 \pm 10mV_{p-p}$

Note: 1) Be sure to always perform REC AFM level confirm and REC ATF level confirm after performing REC C level adjustment.

2) Use MP-type tape.

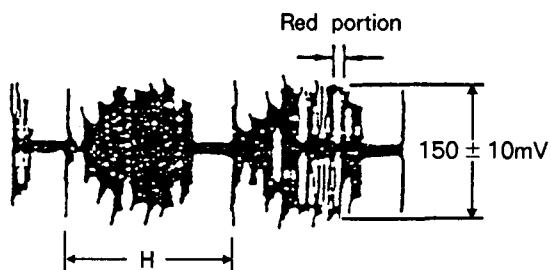


Fig. 9-19 REC C level adjustment

9-5-16. Quasi Burst Phase Adjustment (VI-98 Board)

1. Method using vectorscope

Mode	Playback
Signal	Tape with recorded color bars
Measurement point	VIDEO OUT terminal
Measuring instrument	Vectorscope
Adjusting element	RV402
Specified value	Phase of color luminance points in quasi burst mode is same as phase of color luminance points in through burst mode

(Adjusting Method)

- 1) Make a record of the phase of the color luminance points (especially red). (Through burst mode)
- 2) Connect pin ② of IC400 and pin ① of IC400 with a diode (1SS119, etc.). (Quasi burst mode)

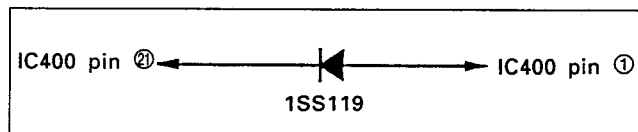


Fig. 9-20

- 3) Adjust RV402 so that the phase of the color luminance points is the same as the phase recorded in 1).
- 4) Remove the diode.

2. Method using monitor TV

Mode	Playback
Signal	Tape with recorded color bars
Measurement point	Confirmation on monitor
Measuring instrument	TV screen
Adjusting element	RV402
Specified value	Minimum chroma flickering

(Connection)

- 1) Connect pin ② of IC400 and pin ① of CN002 (RF SWP) using a diode (1SS119, etc.).

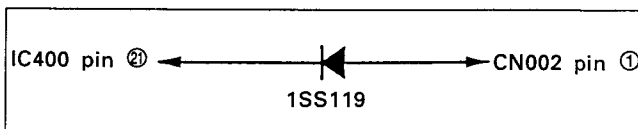


Fig. 9-21

(Adjusting Method)

- 1) Set the color level of the monitor TV to maximum.
- 2) Adjust RV402 for minimum chroma flickering.

9-5-17. Delay Burst Phase Adjustment (VI-98 Board)

Mode	Playback pause (LP mode)
Signal	Alignment tape for operation check (WR5-3CL), color bars
Measurement point	Confirmation on monitor
Measuring instrument	TV screen
Adjusting element	RV403
Specified value	Minimum chroma flickering

(Adjusting Method)

- 1) Set the color level of the monitor TV to maximum.
- 2) Rotate RV403 fully in the counterclockwise direction (↺).
- 3) Slowly rotate RV403 in the clockwise direction and stop at the position where there is minimum chroma flicker.

9-5-18. REC ATF Level Confirmation (CM-13 Board)

Mode	REC
Signal	Non-signal
Measurement point	Pin ⑧ of CN401
Measuring instrument	Oscilloscope
Specified value	$380 \pm 40\text{mVp-p}$

Note: Use MP type tape.

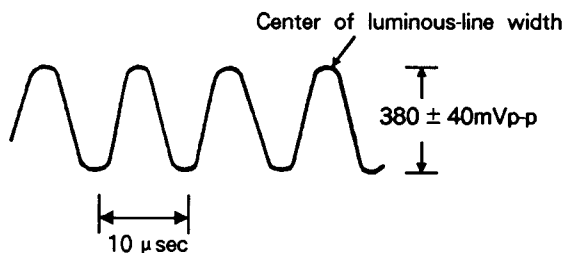


Fig. 9-22 REC ATF level Confirmation

9-6. SECAM-PAL CONVERSION SYSTEM ADJUSTMENT

- Make this adjustment aligning the PAL video system.
- For this adjustment, use the equipment listed below.

(Equipment Required)

- (1) PAL Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth ... more than 10MHz with delay mode
- (3) SECAM colour-bar generator
- (4) PAL vector scope
- (5) Frequency counter
- (6) Digital voltmeter

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect all oscilloscope to CN701 (VIDEO IN) on the RJ-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and line ID signals are flat at approximately 0.3, 0.7, and 0.3V, respectively. Fig. 9-23 shows video signals (Colour bars) used in making the electrical adjustment.

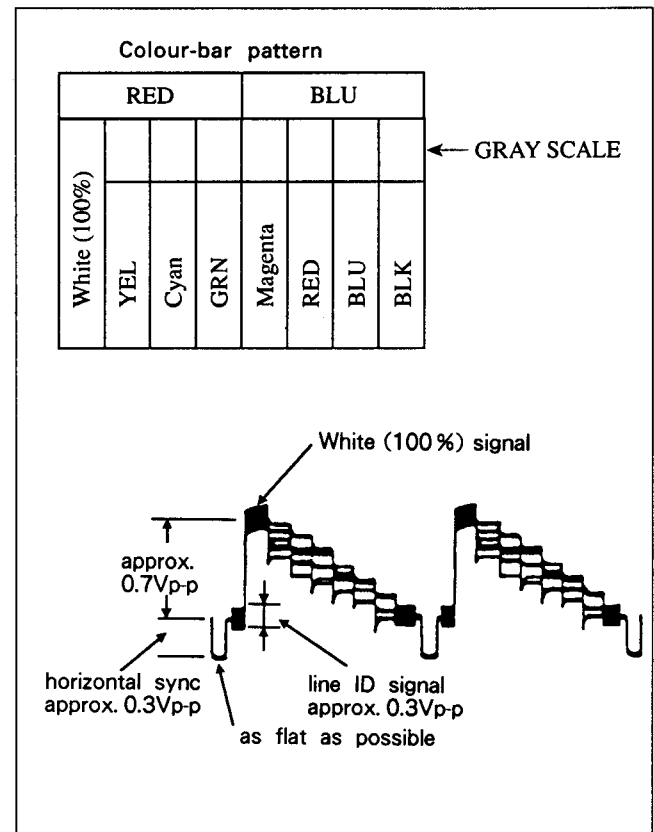


Fig. 9-23

9-6-1. f_H VCO Adjustment (VI-98 Board)

Mode	E-E
Signal	No signal
Measurement point	Pin ② of IC701
Measuring instrument	Frequency counter
Adjustment element	RV700
Specified value	15,625 ± 0.01kHz

(Connection)

Connect between pin ⑩ of IC701 and pin ⑨ of IC701 with a jumper wire.

(Adjustment Method)

- 1) Adjust with RV700 so that it becomes 15,625 ± 0.01kHz.

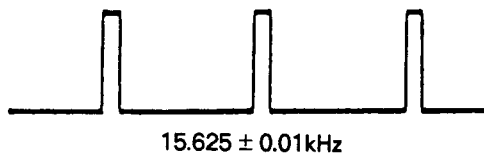


Fig. 9-24

9-6-2. I REF Adjustment (VI-98 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ② of IC701 Pin ① of CN001
Measuring instrument	Oscilloscope
Adjustment element	RV701
Specified value	tr = 4.5 ± 0.1μs

(Adjustment Method)

- 1) IC701 (⑩-⑨ OPEN)

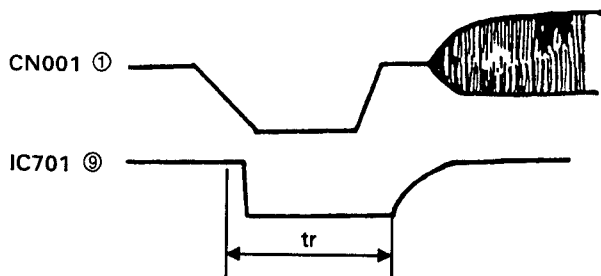


Fig. 9-25

9-6-3. Bell Filter Adjustment (VI-98 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ② of IC701
Measuring instrument	Oscilloscope
Adjustment element	LV700
Specified value	The level variation of the chroma signal amplitude is 0 ± 10%

Note: When performing (Adjustment Method 1) be sure to use 1:1 probe as the signal level of IC701 pin ② is extremely small. In addition, when the adjustment is impossible because of the signal level is too small to read, perform (Adjustment Method 2).

(Adjustment Method 1)

- 1) Adjust LV700 until the waveform is flat.

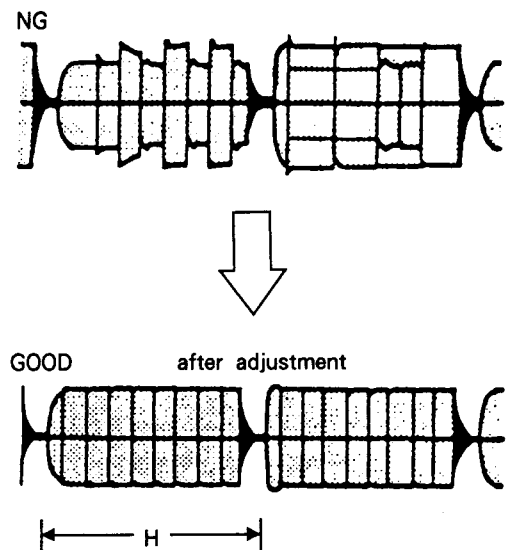


Fig. 9-26

(Adjustment Method 2)

- 1) Set the picture level of the monitor TV to maximum.
- 2) Adjust by turning LV700 so that the borders of the respective colour-bars (especially red and blue) become vivid and stop LV700 at the position where the beat (red and magenta sections) becomes small.

9-6-4. Colour Level Adjustment (VI-98 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ③ of IC702
Measuring instrument	Oscilloscope
Adjustment element	RV702
Specified value	$0.75 \pm 0.05\text{Vp-p}$

Note: IC701 (⑩-⑫ SHORT)

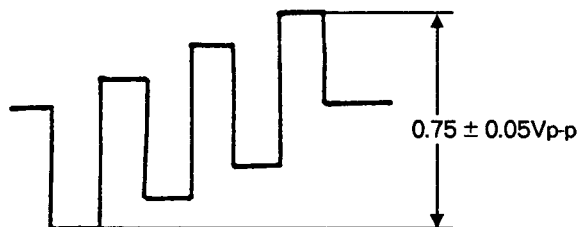


Fig. 9-27

9-6-5. R-Y f₀ Adjustment (VI-98 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ② of IC702
Measuring instrument	Oscilloscope
Adjustment element	LV701
Specified value	Less than 0.05V

(Adjustment Method)

1) IC701 (⑩-⑫ SHORT)

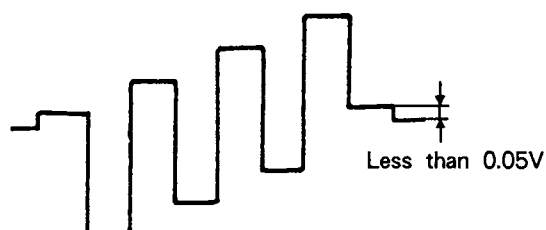


Fig. 9-28

9-6-6. B-Y f₀ Adjustment (VI-98 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ③ of IC702
Measuring instrument	Oscilloscope
Adjustment element	LV702
Specified value	Less than 0.05V

(Adjustment Method)

1) IC701 (⑩-⑫ SHORT)

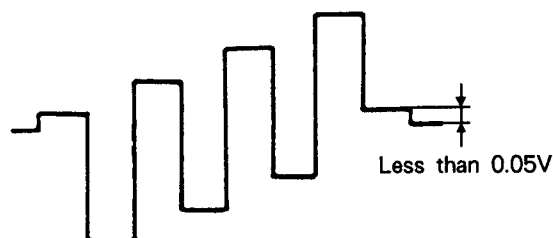


Fig. 9-29

9-7. ADJUSTMENT OF AUDIO SYSTEM

- Use the video signal input consisting of color bar signal for adjustment.

(Connection of Audio Measurement Devices)

Connect the following audio system measurement devices in addition to video system measurement instruments.

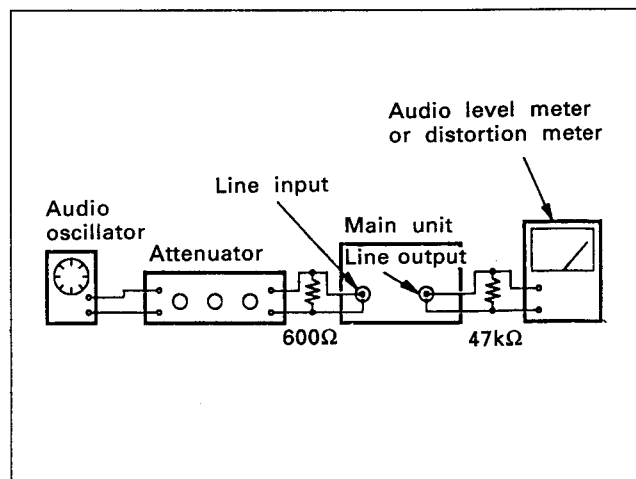


Fig. 9-30

(Adjustment Procedures)

1. PCM master clock oscillation frequency adjustment.
2. PCM playback VCO free oscillation frequency adjustment.
3. PCM playback level adjustment.
4. Line 1 E-E output level check.
5. Line 2 E-E output level check.
6. PCM offset adjustment.
7. PCM recording level adjustment.
8. Overall frequency characteristics check.
9. Overall distortion rate check.
10. Overall noise level check.

9-7-1. PCM Audio System Adjustment

Set switches and control knobs of VTR as follows for adjustment, unless otherwise required.

- Input select buttonLINE 1/2
- Sound monitor (PCM/Mix/Standard) switchPCM

Note: Adjustment element for channel R is shown in ().

1. PCM master clock oscillation frequency adjustment (PC-50 board)

Mode	Record
Signal	No signal
Measurement point	Pin ⑩, IC703
Instrument	Frequency counter
Adjustment element	CV701
Specified value	11.50 ± 0.05MHz

(Adjustment Methods)

- 1) Connect Pin ⑩ of IC703 to SW 5V.
- 2) Connect Pin ⑦ of IC703 to GND.
- 3) Short pins ⑥ and j of IC703.
- 4) Adjust CV701 for 11.50 ± 0.05MHz.
- 5) After completion of adjusting, open each connection of IC703.

2. PCM playback VCO free oscillation frequency adjustment (PC-50 board)

Mode	Playback
Signal	Free tape
Measurement point	Pin ⑧, IC708 (FMCK)
Instrument	Frequency counter
Adjustment element	RV707
Specified value	11.50 ± 0.05MHz

(Adjustment Methods)

- 1) Connect Pin ① of IC708 to +5V.
- 2) Set playback mode.
- 3) Adjust RV602 for 11.50 ± 0.05MHz.
- 4) Open the connection of Pin ① of IC708.

3. PCM playback level adjustment (PC-50 board)

Mode	Playback
Signal	For checking alignment tape operation (WR5-4CSP) 400Hz zone
Measurement point	Sound output L and R (Load resistance 47kΩ)
Instrument	Audio level meter
Adjustment element	RV705
Specified value	-7.5 ± 0.3dBs

(Adjustment Methods)

- 1) Adjust RV705 for -7.5 ± 0.3dBs.

Note: Where there is a level difference of 1.5dBs or more between channels L and R, adjust the level to the center value.

4. Line 1 E-E output level check

Mode	EE
Signal	400Hz, -7.5dBs: Line 1 input L (R)
Measurement point	Line 1 output L (R) (Terminated with 47kΩ)
Instrument	Audio level meter
Specified value	-7.5dBs ± 2dBs

(Check Methods)

- 1) Slide the recording volume knob and check that the level of Line 1 output L (R) becomes -7.5dBs around center click.

5. Line 2 E-E output level check

Mode	EE
Signal	400Hz, -7.5dBs: Line 2 input L (R)
Measurement point	Line 2 output L (R) (terminated with 47kΩ)
Instrument	Audio level meter
Specified value	-7.5dBs ± 2dBs

(Check Methods)

- 1) Slide the recording volume knob and check that the level of Line 2 output L (R) becomes -7.5dBs around center click.

6. PCM offset adjustment (PC-50 board)

Mode	Record
Signal	No signal
Measurement point	Pin ② (CH2), Pin ③ (CH1), IC701
Instrument	Oscilloscope (CH2 Trigger)
Adjustment element	RV701 (RV702)
Specified value	Illuminances of upper and lower bright lines should be the same.

Note: Channels L and R affect each other, so alternately adjust each channel.

(Adjustment Methods)

- 1) Adjust RV701 (RV702) for the same illuminances of upper and lower bright lines.

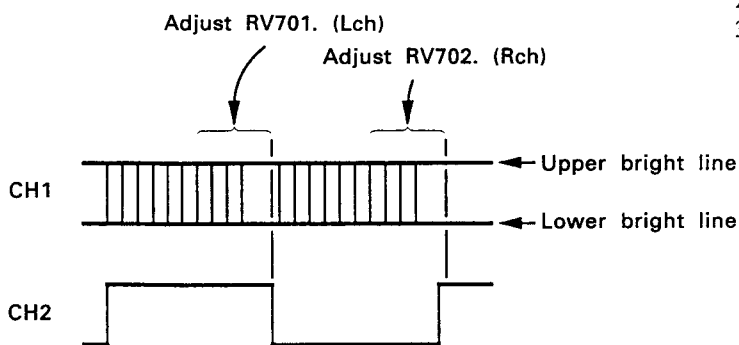


Fig. 9-31

7. PCM recording level adjustment (PC-50 board)

Mode	Record
Signal	400Hz, -7.5dBs Sound input (L and R)
Measurement point	Sound output L (R)
Instrument	Audio level meter
Adjustment element	RV703
Specified value	-7.5 ± 0.5dBs

Note: "Adjustment of PCM Playback Level" should be already finished.

(Adjustment Methods)

- 1) Adjust the recording controls (for the left and right channels) until the line output is within $-7.5 \pm 0.5\text{dBs}$.
- 2) Record the signal, then play it back.
- 3) Adjust RV703 until the left-channel playback level is within $-7.5 \pm 0.5\text{dBs}$, then repeat recording.
- 4) Make sure that the right-channel output is within 1.5 dB with respect to the left-channel output.

8. Overall frequency characteristics check

Mode	Repeated self recording (LP mode)
Signal	Ⓐ 400Hz, -17.5dBs Ⓑ 20Hz, -17.5dBs Ⓒ 14kHz, -17.5dBs Line 1 input L (R)
Measurement point	Line 1 output L (R)
Instrument	Audio level meter
Specified values	Assuming 0dB of 400Hz Playback output level, 20Hz Playback output level is 0^{+2}_{-4}dB while 14kHz Playback level being 0^{+2}_{-5}dB .

(Check Methods)

- 1) Record signals Ⓐ ~ Ⓒ sequentially.
- 2) Playback recorded parts.
- 3) Check that, assuming 0dB of 400Hz playback output level, 20Hz and 14kHz playback output levels are 0^{+2}_{-5}dB and 0^{+2}_{-4}dB , respectively.

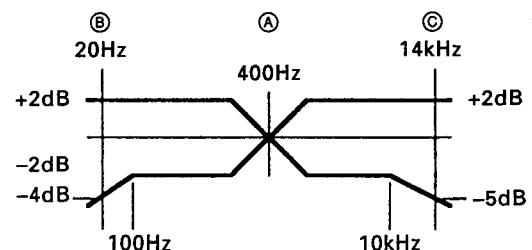


Fig. 9-32

9. Overall distortion rate check

Mode	Repeated self recording (LP mode)
Signal	1kHz, -7.5dBs: Line 1 input L (R)
Measurement point	Line 1 output L (R)
Instrument	Distortion meter
Specified value	0.7% or less

(Check Methods)

- 1) Record the signal.
- 2) Playback recorded part.
- 3) Distortion rate should be 0.7% or less.

10. Overall noise level check

Mode	Repeated self recording (LP mode)
Signal	No signal Insert the 600Ω shorting plug into both input L and R terminals of Line 1.
Measurement point	Line 1 output L (R)
Instrument	Noise meter
Specified value	64dB or above *

(Check Methods)

- 1) Record the signal.
 - 2) Playback recorded part.
 - 3) Difference between noise level and checked value of Line 1 E-E output level should be 64dB or more (IHF-A). *
- * With IHF-A listening compensation filter in use

9-7-2. AFM Audio System Adjustment

Set switches and control knobs, etc. of VTR to the following places during adjustment, unless otherwise required.

Input select switch.....LINE 1/2
Sound monitor (PCM/Mix/Standard)
Switch.....Standard

(Adjustment Procedures)

- 1) AFM carrier frequency adjustment (1.5MHz)
- 2) AFM carrier frequency adjustment (1.7MHz).
- 3) AFM deviation adjustment (1.5MHz).
- 4) E-E output level check.
- 5) AFM deviation adjustment (1.7MHz)
- 6) REC AFM matrix (L-R) adjustment.
- 7) PB AFM matrix (L-R) adjustment.
- 8) REC AFM matrix (L+R) adjustment.
- 9) PB AFM matrix (L+R) adjustment.
- 10) Overall level characteristics check.
- 11) Overall frequency characteristics check.
- 12) Overall distortion rate check.
- 13) Overall noise level check.

1. AFM carrier frequency adjustment (1.5MHz) (PC-50 board)

Mode	Record (SP mode)
Signal	No signal
Measurement point	Pin ③, IC901
Instrument	Frequency counter
Adjustment element	RV901
Specified value	1500 ± 3kHz

(Adjustment Methods)

- 1) Pull up Pin ③ of IC401 to +5V using 1kΩ.
- 2) Adjust RV901 for 1500 ± 3kHz.
- 3) After completion of adjusting, reset pull-up of IC401.

2. AFM carrier frequency adjustment (1.7MHz) (PC-50 board)

Mode	Record (SP mode)
Signal	No signal
Measurement point	Pin ③, IC801 (VCO OUT)
Instrument	Frequency counter
Adjustment element	RV801
Specified value	1700 ± 3kHz

(Adjustment Methods)

- 1) Pull up Pin ③ of IC401 to +5V using 1kΩ.
- 2) Adjust RV801 for 1700 ± 3kHz.
- 3) After completion of adjusting, reset pull-up of IC401.

3. AFM deviation adjustment (1.5MHz) (PC-50 board)

Mode	Record, stereo mode
Signal	Enter 400Hz -7.5dBs into the line input of RJ-20 board
Measurement point	Pin ③, IC901
Instrument	Oscilloscope
Adjustment element	RV902
Specified value	±60 ±0.5kHzp-p

(Adjustment Methods)

- 1) Adjust RV902 for the output level of ±60 ±0.5kHzp-p.

4. E-E output level check

Check items of channel R are shown in ().

Mode	EE
Signal	400Hz -7.5dBs: Sound input (both L and R channels)
Measurement point	Line output L (R) (terminated with 47kΩ)
Instrument	Audio level meter
Specified value	-7.5 ± 2dBs

(Check Methods)

- 1) Sound output L (R) level should be -7.5 ± 2dBs.

5. AFM deviation adjustment (1.7 MHz) (PC-50 board)

Mode	Playback
Signal	Alignment tape: WR5-9CS Operation checking (AFM Bilingual Tape)
Measurement point	Audio output L
Measuring instrument	Audio level meter
Adjustment element	RV802
Specified value	-7.5 ± 0.5dBs

(Adjustment Method)

- 1) Adjust to -7.5 ± 0.5dBs using RV802.

6. REC AFM matrix (L-R) adjustment (PC-50 board)

Mode	REC
Signal	400Hz, -7.5dBs L, R Common phase signal
Measurement point	Pin ⑥ IC801
Measuring instrument	Audio level meter
Adjustment element	RV953
Specified value	Less than -60dBs

7. PB AFM matrix (L-R) adjustment (PC-50 board)

Mode	Playback
Signal	Playback WR5-9CS the 400Hz, -7.5dBs L, R common phase signal
Measurement point	Pin ⑦ IC905
Measuring instrument	Audio level meter
Adjustment element	RV952
Specified value	Less than -35dBs

8. REC AFM matrix (L+R) adjustment (PC-50 board)

Mode	REC
Signal	400Hz, -7.5dBs L, R unti- phase signal
Measurement point	Pin ⑧ IC901
Measuring instrument	Audio level meter
Adjustment element	RV951
Specified value	Less than -60dBs

9. PB AFM matrix (L+R) adjustment (PC-50 board)

Mode	Playback
Signal	Playback WR5-9CS the 400Hz, -7.5dBs L, R unti- phase signal
Measurement point	Pin ① IC906
Measuring instrument	Audio level meter
Adjustment element	RV954
Specified value	Less than -35dBs

10. Overall level characteristics check

Mode	Repeated self recording (SP and LP modes)
Signal	400Hz, -7.5dBs: Sound input (both L and R channels)
Measurement point	Line 1 output L (R) (terminated with 47kΩ)
Instrument	Audio level meter
Specified value	-7.5 ± 3dBs

(Check Methods)

- 1) Record the signal.
- 2) Playback recorded part.
- 3) Sound output level should be -7.5 ± 3dBs.
- 4) Adjust RV902 and RV802 again if the output level is not within specified value.

11. Overall frequency characteristics check

Mode	Repeated self recording (LP mode)
Signal	Ⓐ 400Hz, -17.5dBs Ⓑ 30Hz, -17.5dBs Ⓒ 14kHz, -17.5dBs Sound output (both L and R channels)
Measurement point	Sound output L (R)
Instrument	Audio level meter
Specified value	Assuming 0dB of 400Hz playback output level, playback output levels of 30Hz and 14kHz should be 0 ± 3dB.

(Check Methods)

- 1) Record signals Ⓐ ~ Ⓒ sequential.
- 2) Playback recorded part.
- 3) Assuming 0dB of 400Hz playback output level, playback output levels of 30Hz and 14kHz should be 0 ± 3dB.

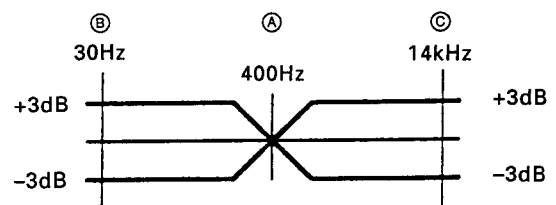


Fig. 9-33 Overall frequency characteristics check

12. Overall distortion rate check

Mode	Repeated self recording (LP mode)
Signal	1kHz, -7.5dBs: Line 1 input (both L and R channels)
Measurement point	Sound output L (R) (terminated with 47kΩ)
Instrument	Distortion meter
Specified value	1.0% or less (with distortion rate measuring filter in use)

(Check Methods)

- 1) Record the signal.
- 2) Playback recorded part.
- 3) Distortion rate should be 1.0% or less.



Fig. 9-34 Filter for measuring distortion rate

13. Overall noise level check

Mode	Repeated self recording (LP mode)
Signal	No signal Insert the 600Ω shorting plug into both sound input L and R terminals.
Measurement point	Sound output L (R)
Instrument	Audio level meter
Specified value	-55dBs or less *

(Checking Methods)

- 1) Record the signal.
- 2) Playback recorded part.
- 3) Difference between noise level and checked overall level characteristics should be 55dB or above. *

* With IHF-A listening compensation filter in use

9-8. ADJUSTMENT OF TUNER SYSTEM

9-8-1. RF AGC Adjustment (IF001 Unit/TU-100 Board)

Signal	Broadcast TV signal
Adjustment element	VR of IF001 unit

(Adjustment Method)

- 1) Adjust the monitor TV to a maximum contrast.
- 2) Turn the VR to make snow noise visible.
- 3) Turn the VR in an opposite direction and set it to the point where the snow noise disappears.
- 4) Receive each channel and confirm that there are no beat picture corruption snow noises due to cross modulation.

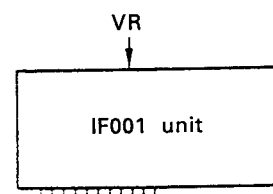


Fig. 9-35

9-8-2. Receive Separation (MPX) Adjustment (TU-100 Board)

Signal	Stereo Lch: 400 Hz, 100% modulation (AERIAL IN of RF) Rch: No modulation
Connection point	Audio line output: L and R channels
Measurement equipment	Oscilloscope
Adjustment element	RV001

(Setting of The Switch)

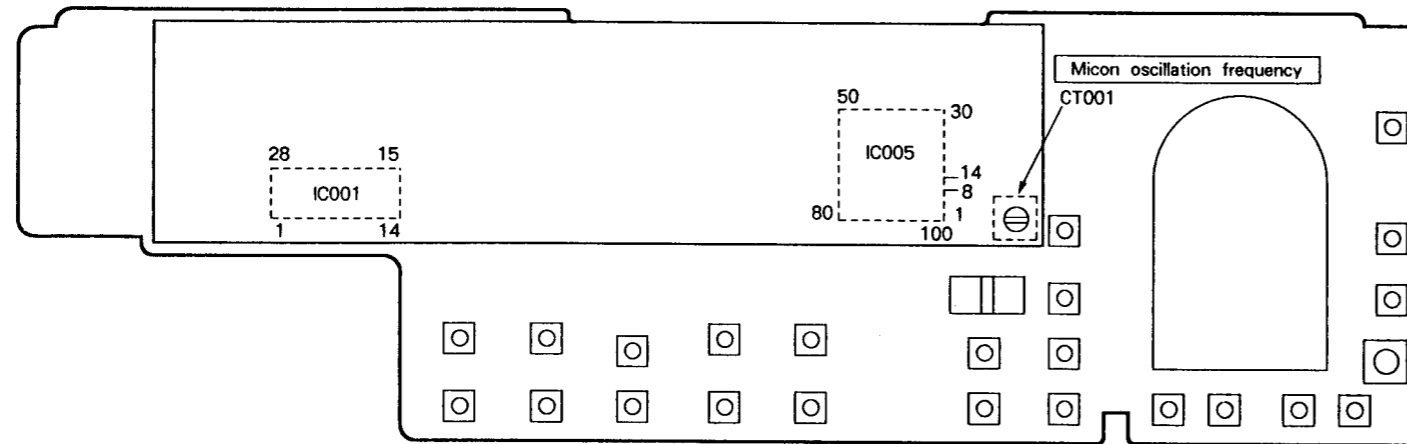
RV101-L (FR-4 board)Center click
RV101-R (FR-4 board)Center click

(Adjustment Method)

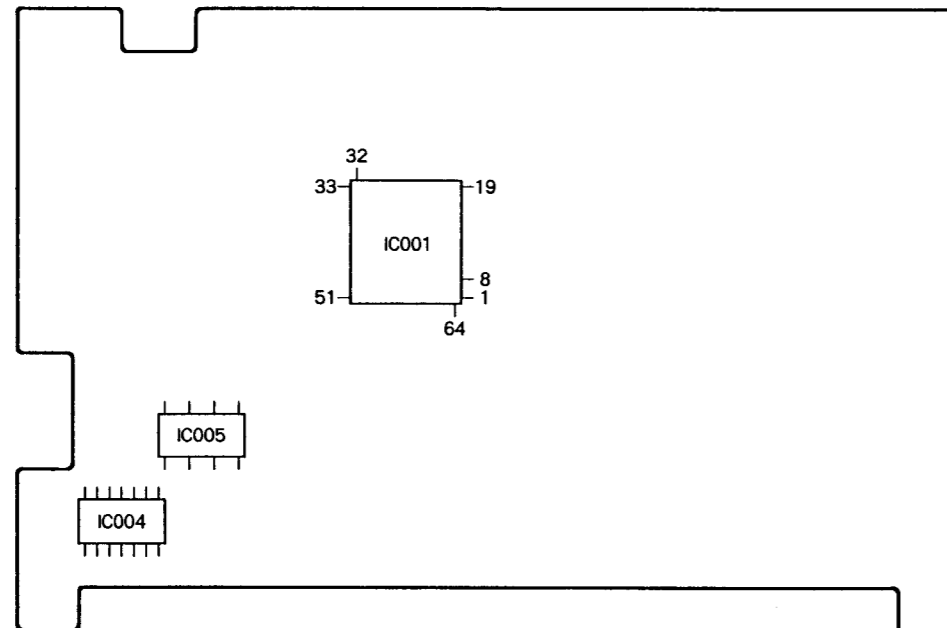
- 1) Set the sound multiplex signal generator in the Stereo mode, and set only Lch to 400Hz, 100% modulation.
- 2) Connect the oscilloscope to the Rch of Audio Line Output.
- 3) Adjust RV001 to minimize Rch output.
When this is done, do not fully turn RV001.
(The "STEREO" indicator must be illuminated).

9-9. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

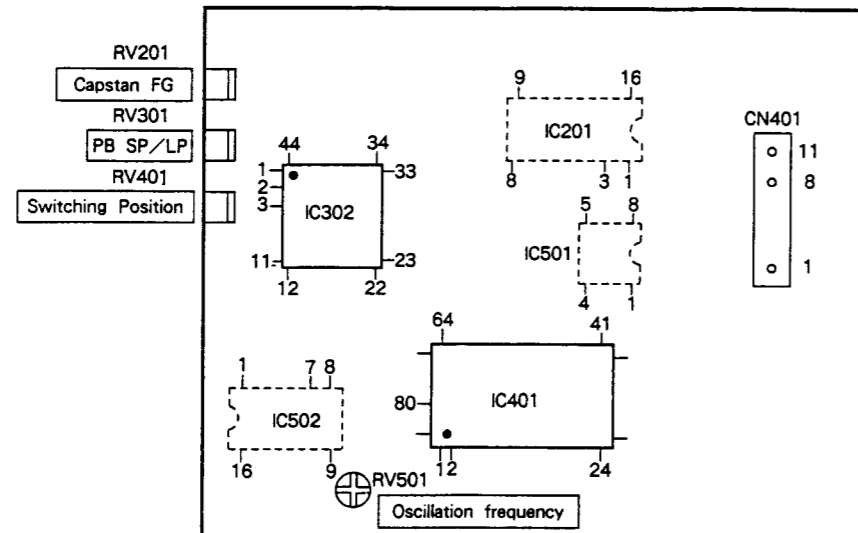
FR-60 BOARD (COMPONENT SIDE)



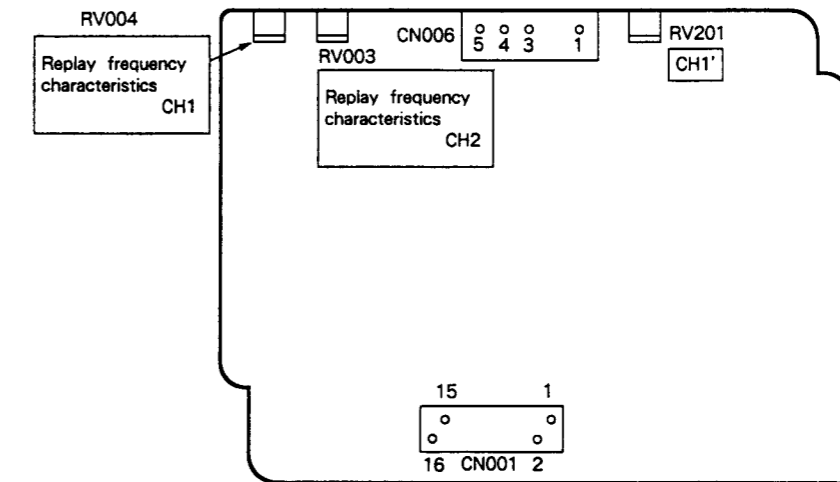
ST-41 BOARD (CONDUCTOR SIDE)



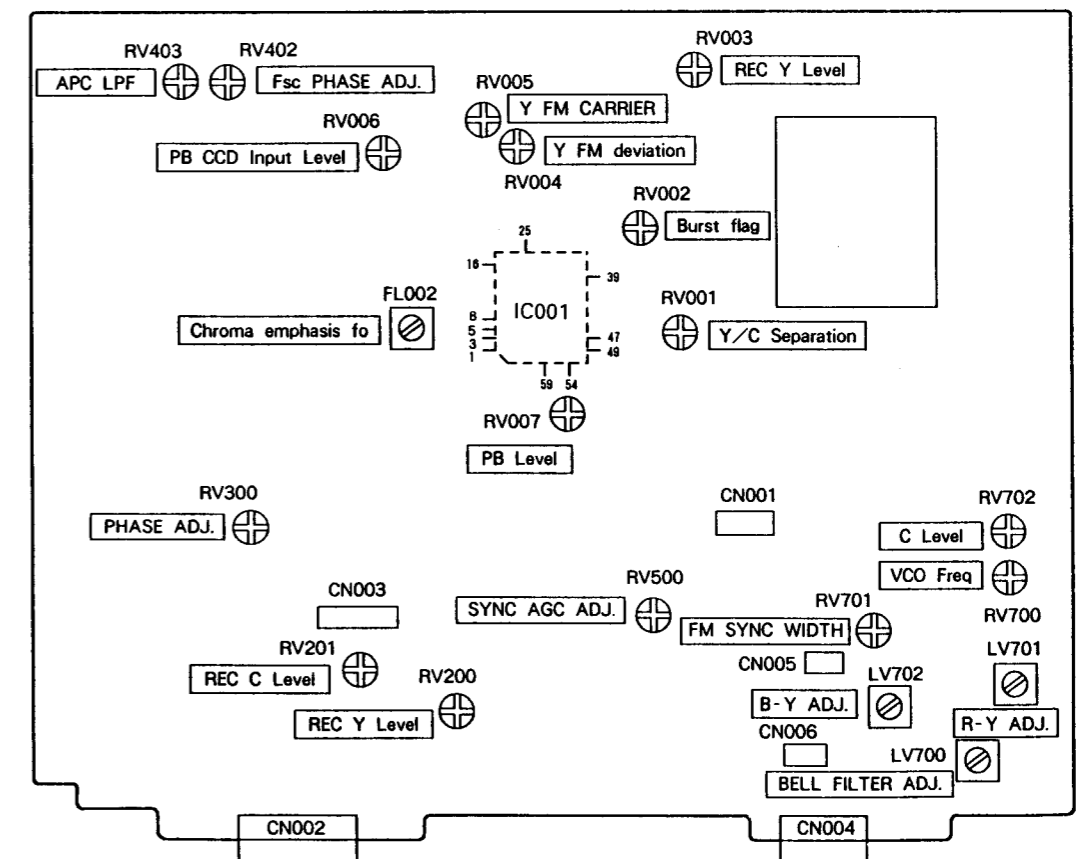
CM-13 BOARD (COMPONENT SIDE)



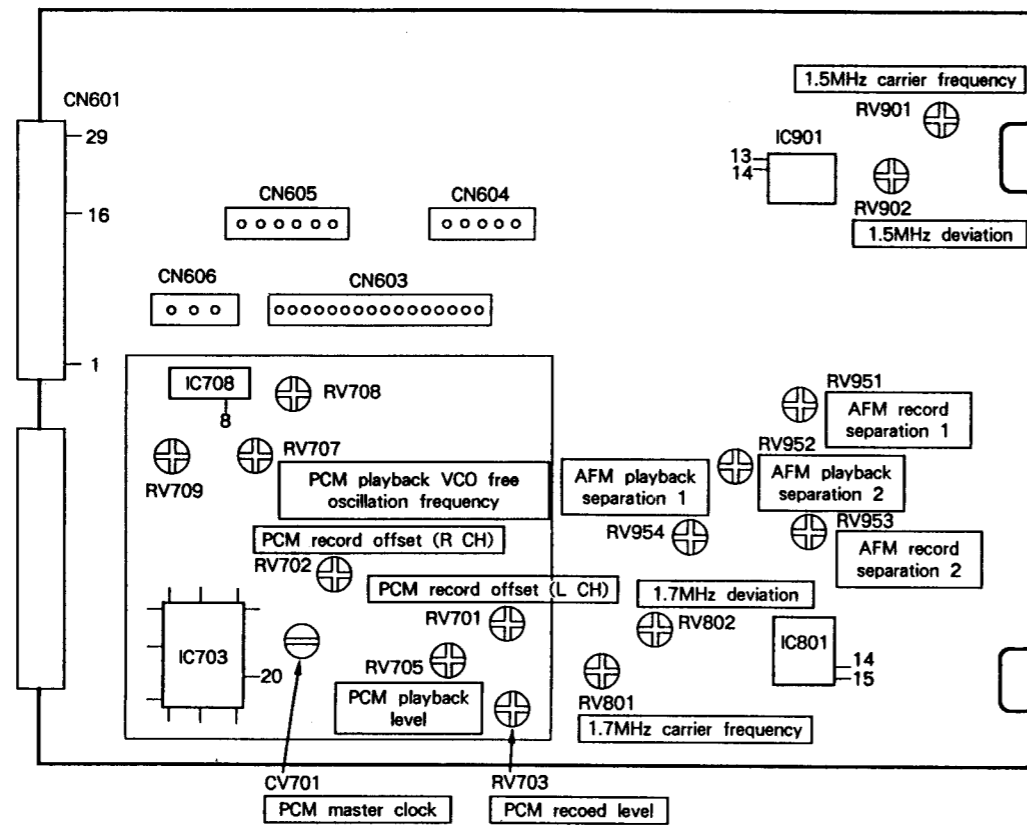
RP-69 BOARD (COMPONENT SIDE)



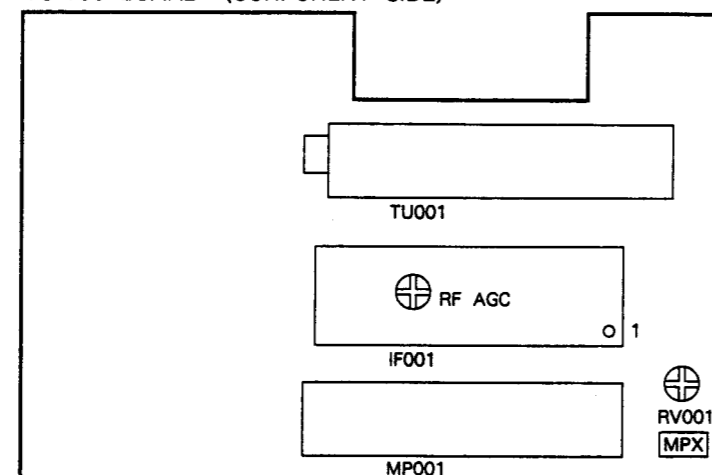
VI-98 BOARD (COMPONENT SIDE)



PC-50 BOARD (COMPONENT SIDE)



TU-100 BOARD (COMPONENT SIDE)



EV-S550B/S550E

RMT-456

SONY SERVICE MANUAL

French Model
AEP Model

SUPPLEMENT-1

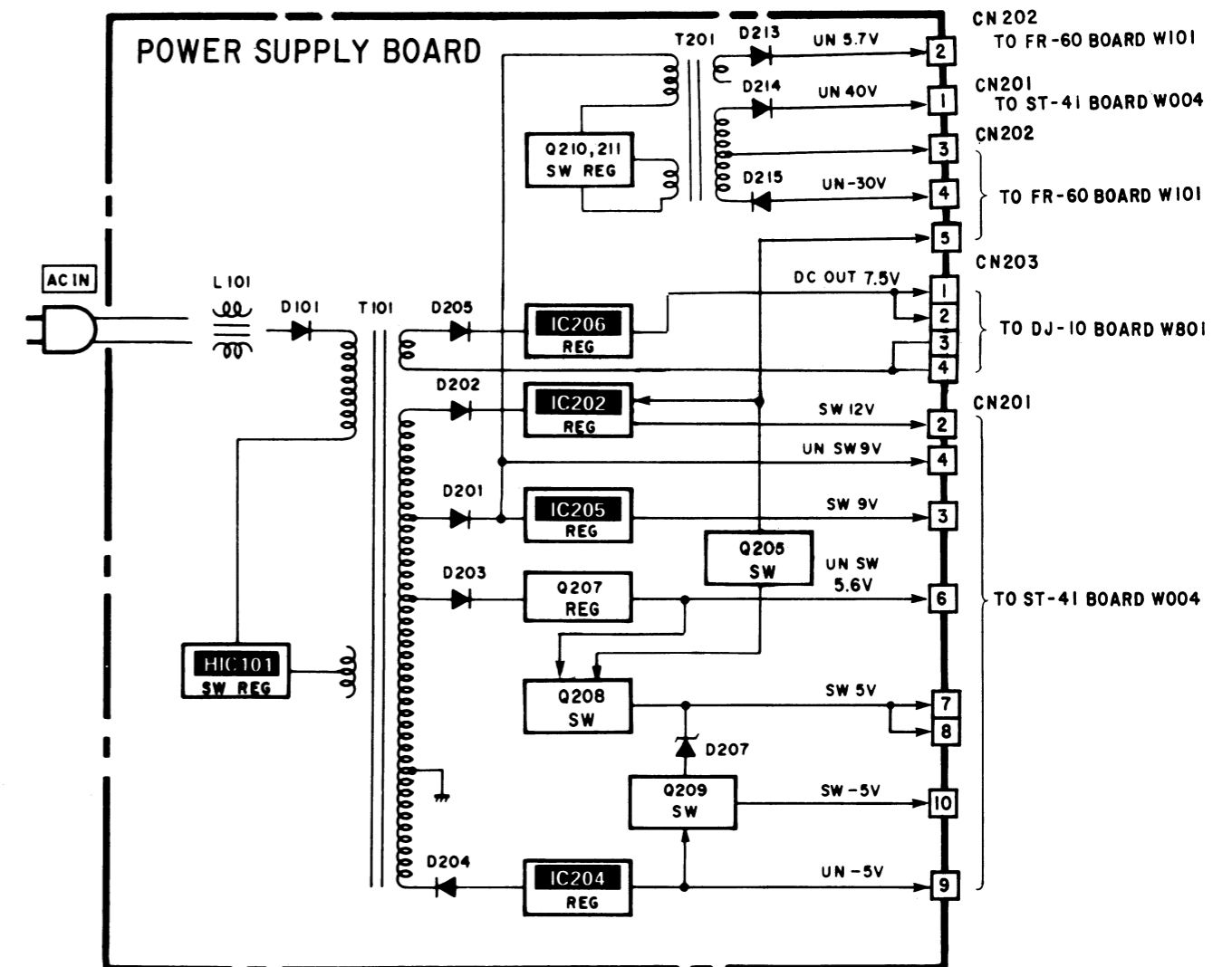
- Although the power block was supplied thus far in ASSY, it has now changed to disassembly services. Therefore, this board is detailed in the following.
Use this manual in conjunction with the SERVICE MANUAL of EV-S550B and EV-S550E.

This supplement includes only the following items.

- 4-17 POWER SUPPLY BLOCK DIAGRAM
- 5-2 HS-46SH PRINTED WIRING BOARD
HS-46SH SCHEMATIC DIAGRAMS
- 7 HS-46SH ELECTRICAL PARTS LIST

SECTION 4 DIAGRAM

4-17. POWER SUPPLY BLOCK DIAGRAM



SECTION 5
PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

5-2. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

• HS-46SH Board

HS-46SH (POWER SUPPLY) PRINTED WIRING BOARD
—Ref. No. HS-46SH Board: 1000 series—

● SEMICONDUCTOR LOCATION

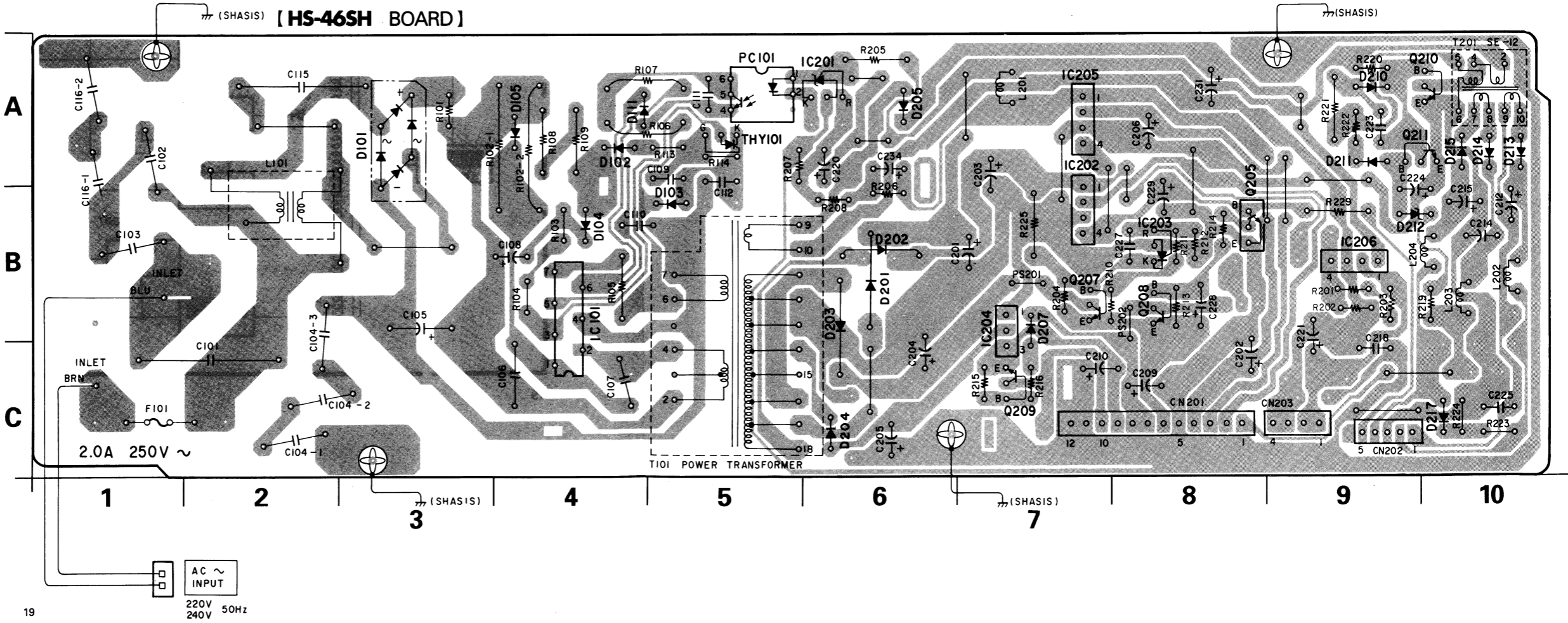
Ref. No.	Location
D101	B-3
D102	B-5
D103	B-5
D104	B-4
D105	B-4
D111	B-5
D201	C-6
D202	B-6
D203	C-6
D204	D-6
D205	A-6
D207	C-7
D210	A-9
D211	B-9
D212	B-10
D213	B-10
D214	B-10
D215	B-10
D217	D-10
IC101	C-4
IC201	A-6
IC202	B-8
IC203	B-8
IC204	C-7
IC205	A-8
IC206	B-9
PC101	A-5
THY101	B-5
Q205	B-9
Q207	C-8
Q208	C-8
Q209	C-7
Q210	A-10
Q211	B-10

DIODE			
D101	△ 8-719-500-38	DIODE	D2SB60
D102	8-719-100-68	DIODE	RD13ES82,HZS13EB2
D103	8-719-107-76	DIODE	1SS202,1SS270A
D104	9-998-358-01	DIODE	D1N60
D105	9-998-358-01	DIODE	D1N60
D111	9-998-358-01	DIODE	D1N60
D201	8-719-500-66	DIODE	S3LA20
D202	8-719-907-30	DIODE	ERB84-009
D203	8-719-903-06	DIODE	ERC84-009
D204	8-719-510-46	DIODE	D1NL20,ERA91-02
D205	9-998-359-01	DIODE	D5S6M,D5S9M
D207	8-719-109-93	DIODE	RD6.2ESB2,HZS6.2EB2
D210	8-719-107-76	DIODE	1SS202,1SS270A
D211	8-719-109-57	DIODE	RD2.4ESB2,HZS2.4EB2
D212	8-719-110-88	DIODE	RD39ESB2,HZS39EB2
D213	8-719-510-46	DIODE	D1NL20,ERA91-02
D214	8-719-510-46	DIODE	D1NL20,ERA91-02
D215	8-719-510-46	DIODE	D1NL20,ERA91-02
D217	8-719-110-13	DIODE	RD9.1ESB2,HZS9.1EB2

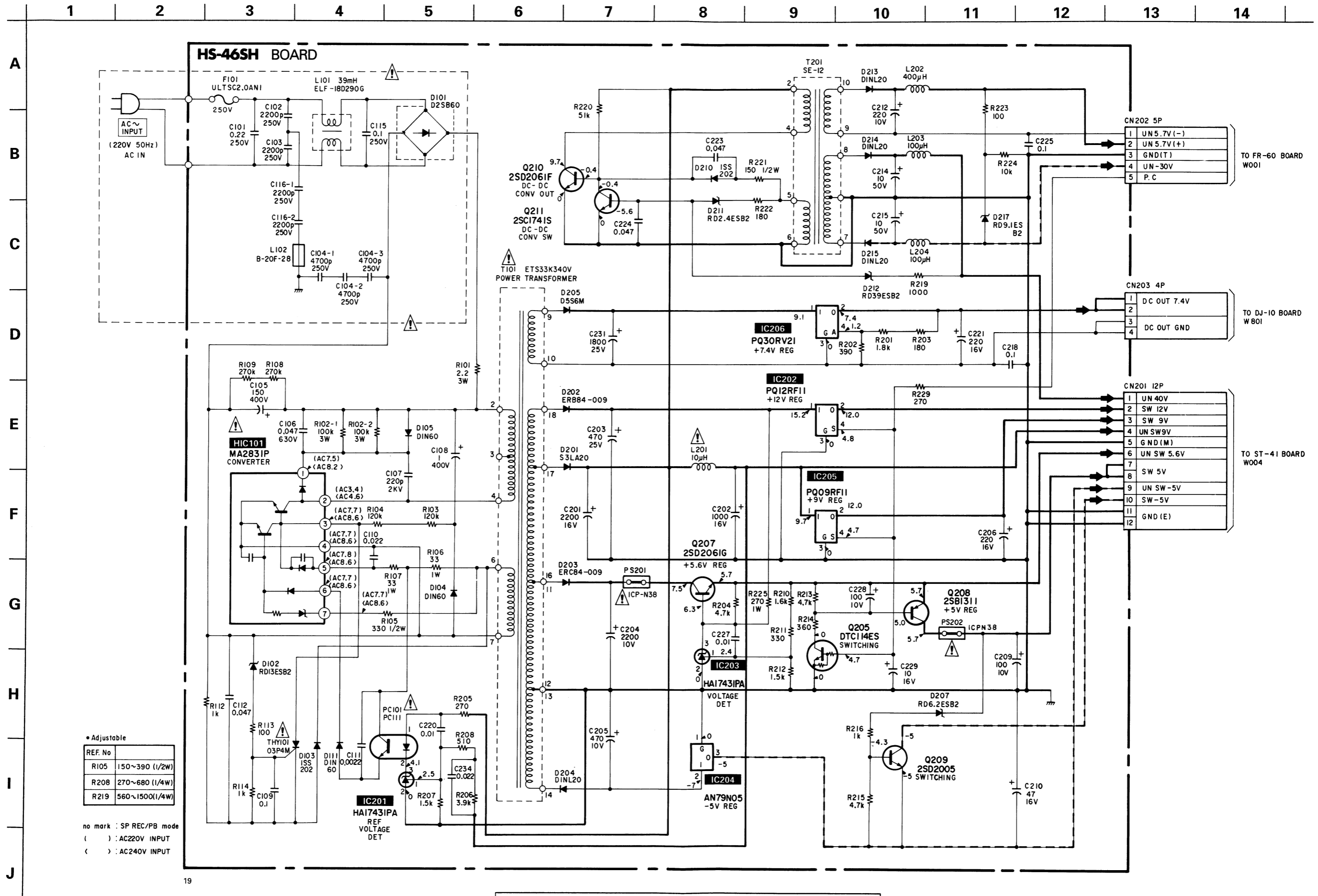
IC			
HIC101	△ 9-998-360-01	HBIC	MA2831P
IC201	8-759-321-95	IC	HA17431PA,AN1431T
IC203	8-759-321-95	IC	HA17431PA,AN1431T
IC202	9-998-361-01	IC	PQ12RF11
IC204	9-998-362-01	IC	AN79N05,μPC79N05H
IC205	9-998-363-01	IC	PQ09RF11
IC206	9-998-364-01	IC	PQ30RV21
Q205	8-729-900-80	TRANSISTOR	DTC114ES,UN4211
Q207	8-729-900-80	TRANSISTOR	2SD2061G
Q208	9-998-367-01	TRANSISTOR	2SB1331,2SB1010
Q209	8-729-926-62	TRANSISTOR	2SD2005(R),2SC2061
Q210	8-729-906-97	TRANSISTOR	2SD2061F
Q211	9-998-366-01	TRANSISTOR	2SC1741S

TRANSISTOR

Caution:
Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.



HS-46SH (POWER SUPPLY) SCHEMATIC DIAGRAM
—Ref. No. HS-46SH Board: 1000 series—



SECTION 7
ELECTRICAL PARTS LIST

HS-46SH

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE : Metal Oxide-film resistor
F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example :
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
MF: μ F, PF: μ F
- COILS
MMH: mH, uH: μ H

Ref.No.	Part No.	Description	Remark
	*1-413-591-11	HS-46SJ FLEXING REGULATOR ASSY (Ref. No. 1000 Series)	

	*3-742-561-31	PS SEALED CASE	
	*3-742-562-02	PS SEALED CASE COVER	
	*	HEAT RADIATE PLATE, SCREW,	
	*	CLAMPER, PLATING, JUMPER, CODE	
	*	etc.	
	*9-998-377-01	PRINTING BOARD	
	CAPACITOR		
C101	Δ 1-136-937-11	FILM	0.22MF AC250V
C102	Δ 9-998-369-01	CERAMIC	2200PF AC250V
C103	Δ 9-998-369-01	CERAMIC	2200PF AC250V
C104-1	Δ 9-998-368-01	CERAMIC	4700PF AC250V
C104-2	Δ 9-998-368-01	CERAMIC	4700PF AC250V
C104-3	Δ 9-998-368-01	CERAMIC	4700PF AC250V
C105	9-998-370-01	ELECT	150MF 400V
C106	9-998-371-01	FILM	0.047MF 630V
C107	9-998-372-01	CERAMIC	220PF 2KV
C108	9-998-373-01	ELECT	1MF 400V
C109	1-130-528-11	FILM	0.1MF 50V
C110	1-130-520-11	FILM	0.022MF 50V
C111	1-130-508-11	FILM	0.0022MF 50V
C112	1-130-524-11	FILM	0.047MF 50V
C115	Δ 1-136-472-15	FILM	0.1MF AC250V
C116-1	Δ 9-998-369-01	CERAMIC	2200PF AC250V
C116-2	Δ 9-998-369-01	CERAMIC	2200PF AC250V
C201	1-126-589-11	ELECT	2200MF 16V(105°C)
C202	1-126-588-11	ELECT	1000MF 16V(105°C)
C203	9-998-374-01	ELECT	470MF 25V(105°C)
C204	9-998-375-01	ELECT	2200MF 10V(105°C)
C205	1-126-586-11	ELECT	470MF 10V(105°C)
C206	1-124-118-51	ELECT	220MF 16V
C209	1-124-443-51	ELECT	100MF 10V
C210	1-124-474-51	ELECT	47MF 16V
C212	1-124-444-51	ELECT	220MF 10V
C214	1-124-907-51	ELECT	10MF 50V
C215	1-124-907-51	ELECT	10MF 50V
C218	1-130-528-11	FILM	0.1MF 50V
C220	1-130-516-11	FILM	0.01MF 50V
C221	1-124-118-51	ELECT	220MF 16V
C223	1-130-524-11	FILM	0.047MF 50V
C224	1-130-524-11	FILM	0.047MF 50V
C225	1-130-528-11	FILM	0.1MF 50V
C227	1-130-516-11	FILM	0.01MF 50V
C228	1-124-443-51	ELECT	100MF 10V
C229	1-124-907-51	ELECT	10MF 16V
C231	9-998-376-01	ELECT	1800MF 25V(105°C)

Ref.No.	Part No.	Description	Remark
C234	1-130-520-11	FILM	0.022MF 50V
	CONNECTOR		
CN101	Δ 9-998-378-01	CORD SP-906165	
CN201	1-508-850-11	CONNECTOR	2.5mm 12P
CN202	1-564-015-11	CONNECTOR	2.0mm 5P
CN203	1-508-847-11	CONNECTOR	2.5mm 4P
	DIODE		
D101	Δ 8-719-500-38	DIODE D2SB60	
D102	8-719-100-68	DIODE RD13ES82,HZS13EB2	
D103	8-719-107-76	DIODE 1SS202,1SS270A	
D104	9-998-358-01	DIODE D1N60	
D105	9-998-358-01	DIODE D1N60	
D111	9-998-358-01	DIODE D1N60	
D201	8-719-500-66	DIODE S3LA20	
D202	8-719-907-30	DIODE ERB84-009	
D203	8-719-903-06	DIODE ERC84-009	
D204	8-719-510-46	DIODE D1NL20,ERA91-02	
D205	9-998-359-01	DIODE D5S6M,D5S9M	
D207	8-719-109-93	DIODE RD6.2ESB2,HZS6.2EB2	
D210	8-719-107-76	DIODE 1SS202,1SS270A	
D211	8-719-109-57	DIODE RD2.4ESB2,HZS2.4EB2	
D212	8-719-110-88	DIODE RD39ESB2,HZS39EB2	
D213	8-719-510-46	DIODE D1NL20,ERA91-02	
D214	8-719-510-46	DIODE D1NL20,ERA91-02	
D215	8-719-510-46	DIODE D1NL20,ERA91-02	
D217	8-719-110-13	DIODE RD9.1ESB2,HZS9.1EB2	
	FUSE		
F101	Δ 1-532-203-11	FUSE BET2.0A	
	9-998-349-01	FUSE CLIP H-0451	
	9-998-350-01	FUSE CLIP H-0452	
	IC		
HIC101	Δ 9-998-360-01	HBIC MA2831P	
IC201	8-759-321-95	IC HA17431PA,AN1431T	
IC203	8-759-321-95	IC HA17431PA,AN1431T	
IC202	9-998-361-01	IC P012RF11	
IC204	9-998-362-01	IC AN79N05, μ PC79N05H	
IC205	9-998-363-01	IC P009RF11	
IC206	9-998-364-01	IC P030RV21	
	COIL		
L101	Δ 9-998-354-01	COIL ELF-18D427F	39MMH
L102	Δ 9-998-351-01	FERRITE BEADS B-20F-28	
L201	Δ 9-998-355-01	COIL PC7-100M	10UH
L202	9-998-356-01	COIL	HCD-3401HS400UH
L203	9-998-357-01	COIL	HCD-3101H 100UH

HS-46SH

Ref.No.	Part No.	Description	Remark
L204	9-998-357-01	COIL HCD-3101H	100UH
	PHOTOCOUPLER		
PC101	Δ 8-719-939-00	PHOTOCOUPLER	PC111
	IC PROTECTOR		
PS201	Δ 1-532-675-21	IC PROTECTOR	ICP-N38,ICP-F38
PS202	Δ 1-532-675-21	IC PROTECTOR	ICP-N38,ICP-F38
	TRANSISTOR		
Q205	8-729-900-80	TRANSISTOR DTC114ES.UN4211	
Q207	8-729-900-80	TRANSISTOR 2SD2061G	
Q208	9-998-367-01	TRANSISTOR 2SB1331,2SB1010	
Q209	8-729-926-62	TRANSISTOR 2SD2005(R),2SC2061	
Q210	8-729-906-97	TRANSISTOR 2SD2061F	
Q211	9-998-366-01	TRANSISTOR 2SC1741S	
	RESISTOR		
R101	9-998-379-01	CEMENT	2.2 3W
R102-1	1-215-929-51	METAL	100K 3W
R102-2	1-215-929-51	METAL	100K 3W
R103	9-998-380-01	CARBON	120K 1/4W
R104	9-998-380-01	CARBON	120K 1/4W
R105	1-247-745-51	CARBON	150-390 1/2W
R106	1-215-860-51	METAL	33 1W
R107	1-215-860-51	METAL	33 1W
R108	1-244-931-51	CARBON	270K 1/2W
R109	1-244-931-51	CARBON	270K 1/2W
R112	1-247-831-31	CARBON	1K 1/4W
R113	1-247-807-31	CARBON	100 1/4W
R114	1-247-831-31	CARBON	1K 1/4W
R201	1-215-427-31	METAL	1.8K 1/4W
R202	1-215-411-31	METAL	390 1/4W
R203	1-215-403-31	METAL	180 1/4W
R204	1-247-847-31	CARBON	4.7K 1/4W
R205	1-244-859-51	CARBON	270 1/2W
R206	1-215-435-31	METAL	3.9K 1/4W
R207	1-215-425-31	METAL	1.5K 1/4W
R208	1-215-438-31	METAL	270-680 1/4W
R210	1-215-426-31	METAL	1.6K 1/4W
R211	1-247-819-31	CARBON	330 1/4W
R212	1-215-425-31	METAL	1.5K 1/4W
R213	1-247-847-31	CARBON	4.7K 1/4W
R214	1-247-820-31	CARBON	360 1/4W
R215	1-247-847-31	CARBON	4.7K 1/4W
R216	1-247-831-31	CARBON	1K 1/4W
R219	1-215-421-31	METAL	560-1.5K 1/4W
R220	1-247-872-31	CARBON	51K 1/4W
R221	1-247-811-31	CARBON	150 1/2W
R222	1-247-813-31	CARBON	180 1/4W
R223	1-247-807-31	CARBON	100 1/4W
R224	1-247-855-31	CARBON	10K 1/4W
R225	1-216-429-51	METAL	270 1W
R229	1-247-817-31	CARBON	270 1/4W

TRANSFORMER

T101	Δ 9-998-352-01	TRANSFORMER ETS33K340V
T201	9-998-353-01	TRANSFORMER SE-12

THYRISTOR

THY101	Δ 9-998-365-01	THYRISTOR 03P4M.SF0R3G42
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The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

EV-S550B/S550E

RMT-456

SONY SERVICE MANUAL

AEP Model
Australian Model
EV-S550E
French Model
EV-S550B

SUPPLEMENT-2

File this supplement with the service manual.

Replace PC-50 Board with PC-56 Board

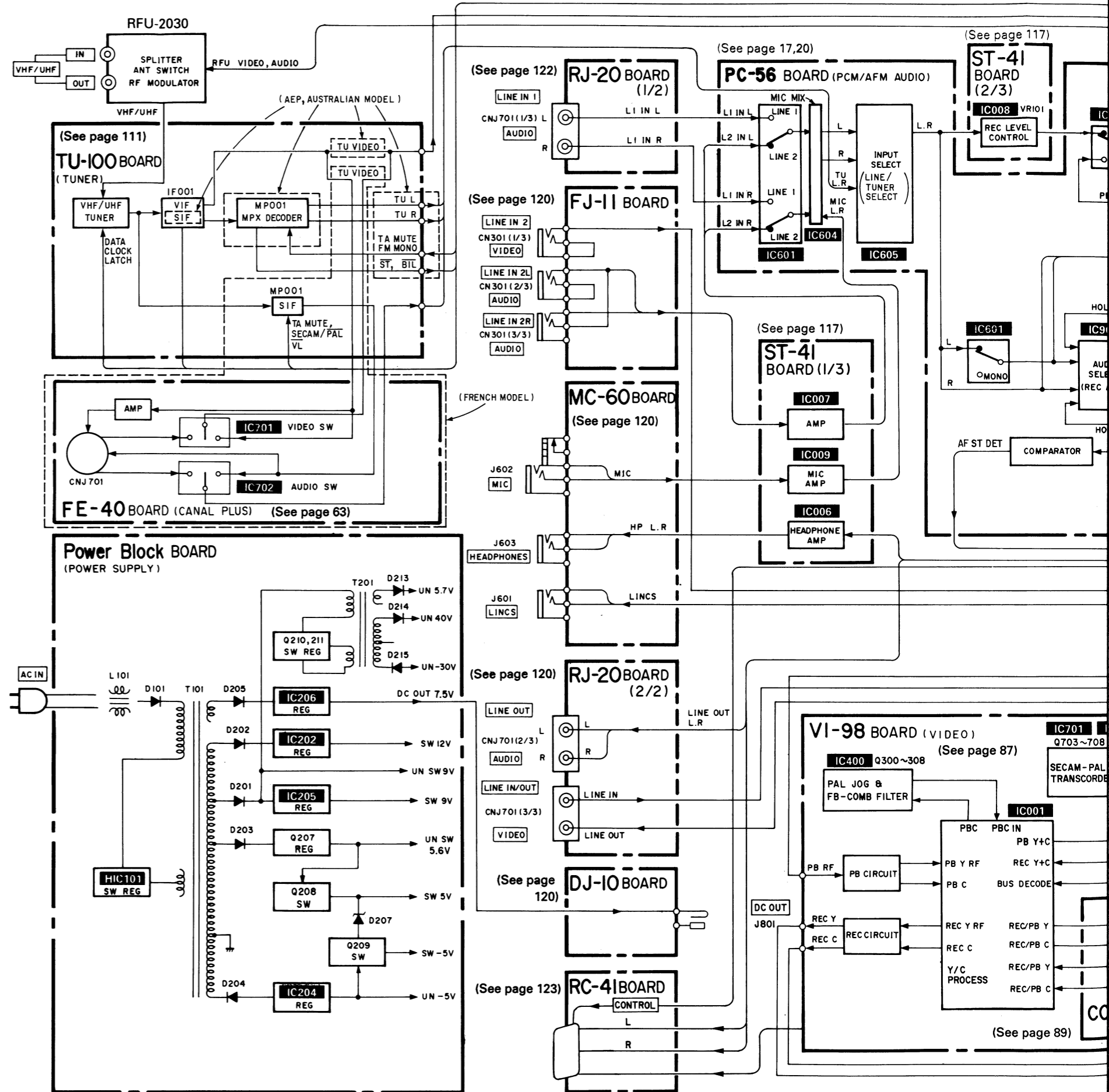
TABLE OF CONTENTS

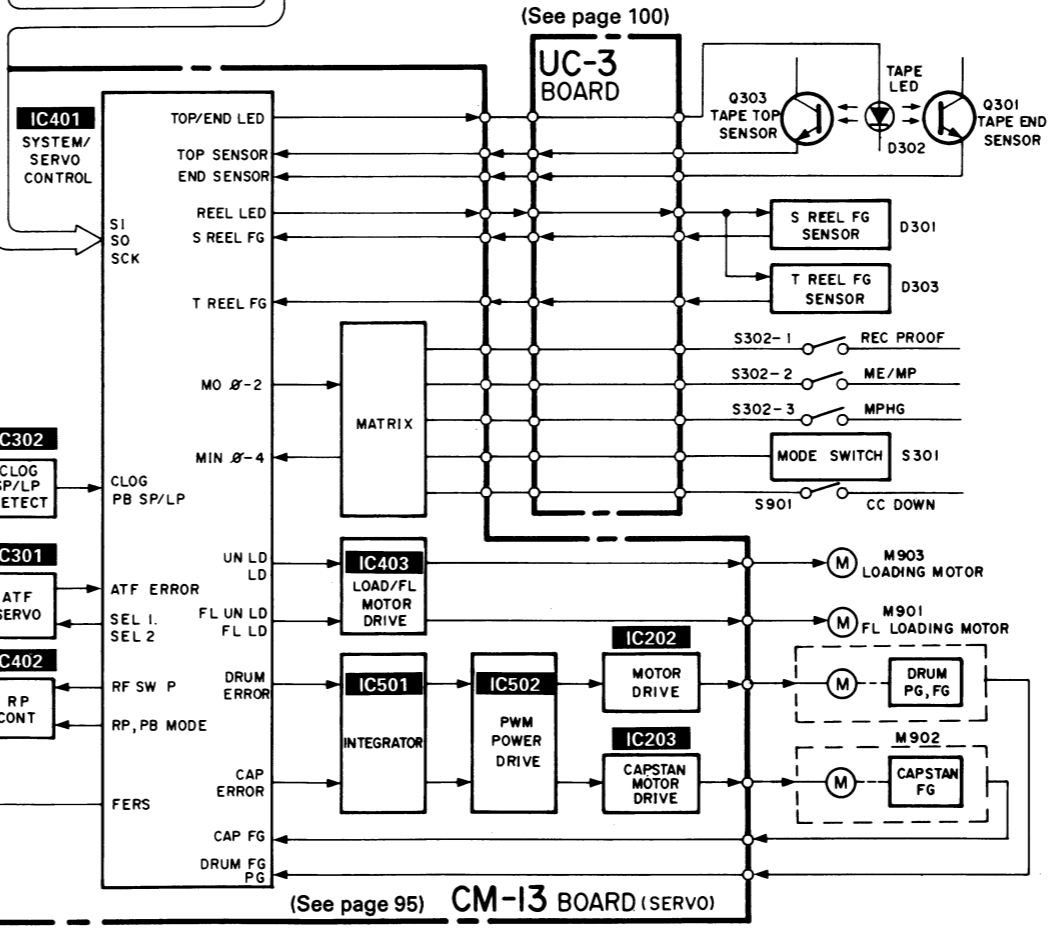
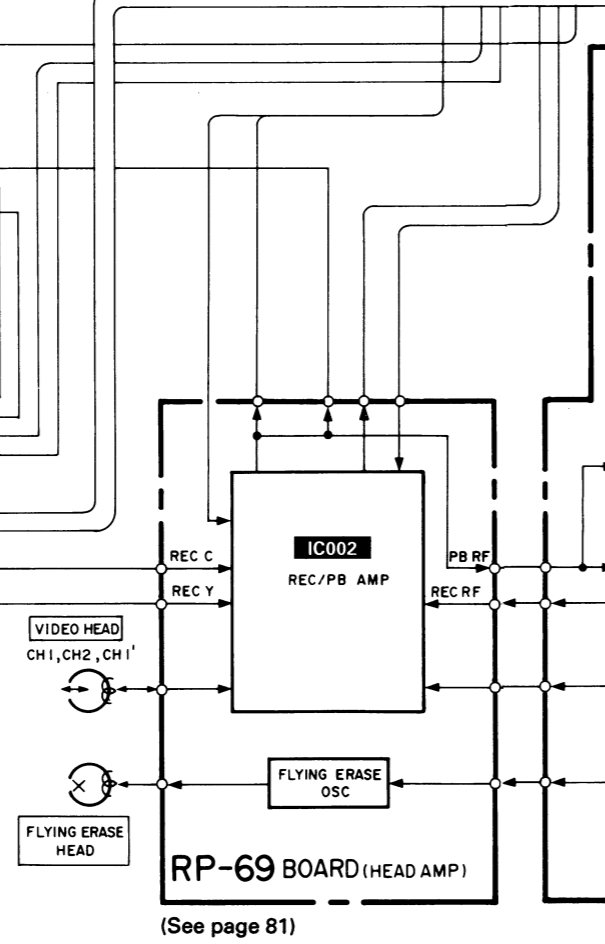
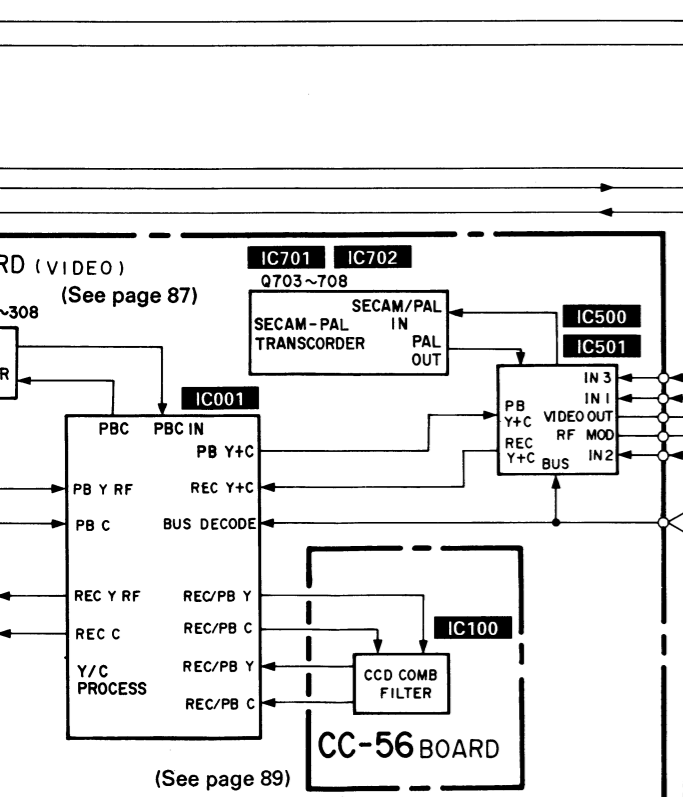
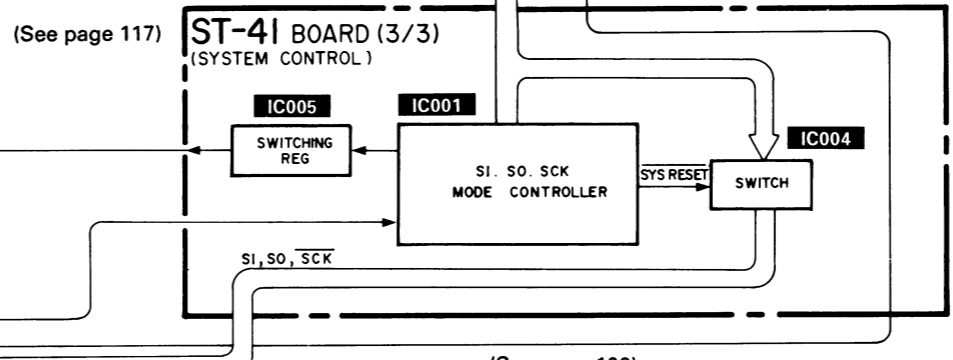
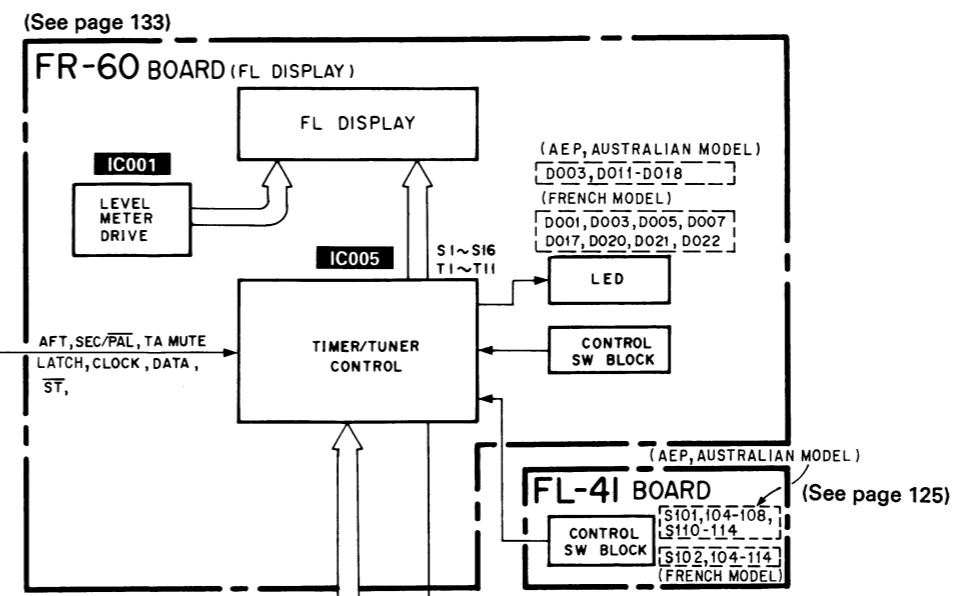
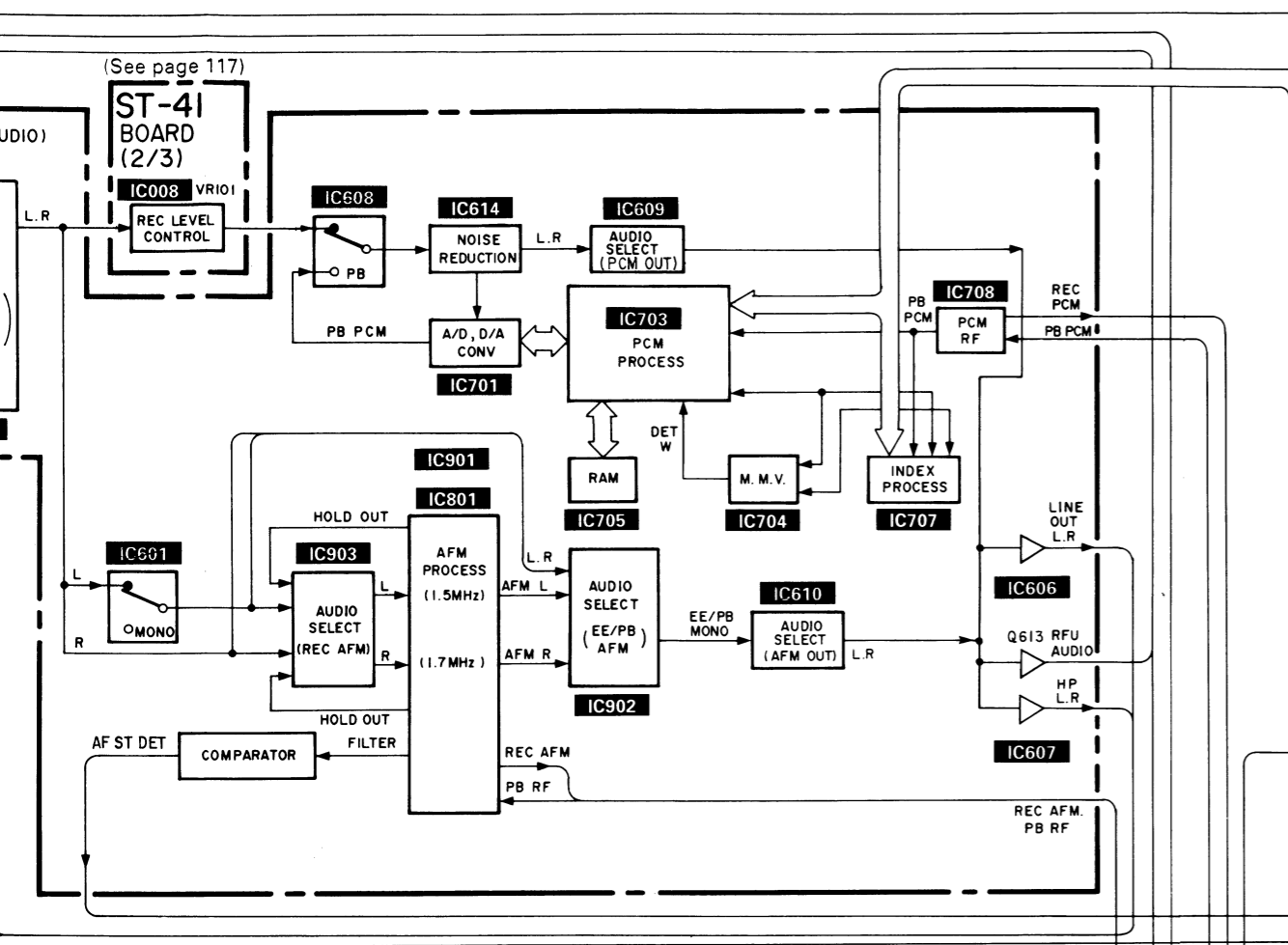
<u>Section</u>	<u>Title</u>	<u>Page</u>
1. DIAGRAMS		
1-1.	Overall Block Diagram	3
1-2.	Audio Block Diagram	7
2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS		
2-1.	Frame Schematic Diagram	11
2-2.	Printed Wiring Boards and Schematic Diagrams	17
3. ELECTRICAL PARTS LIST		26

SECTION 1 BLOCK DIAGRAMS

1-1. OVERALL BLOCK DIAGRAM

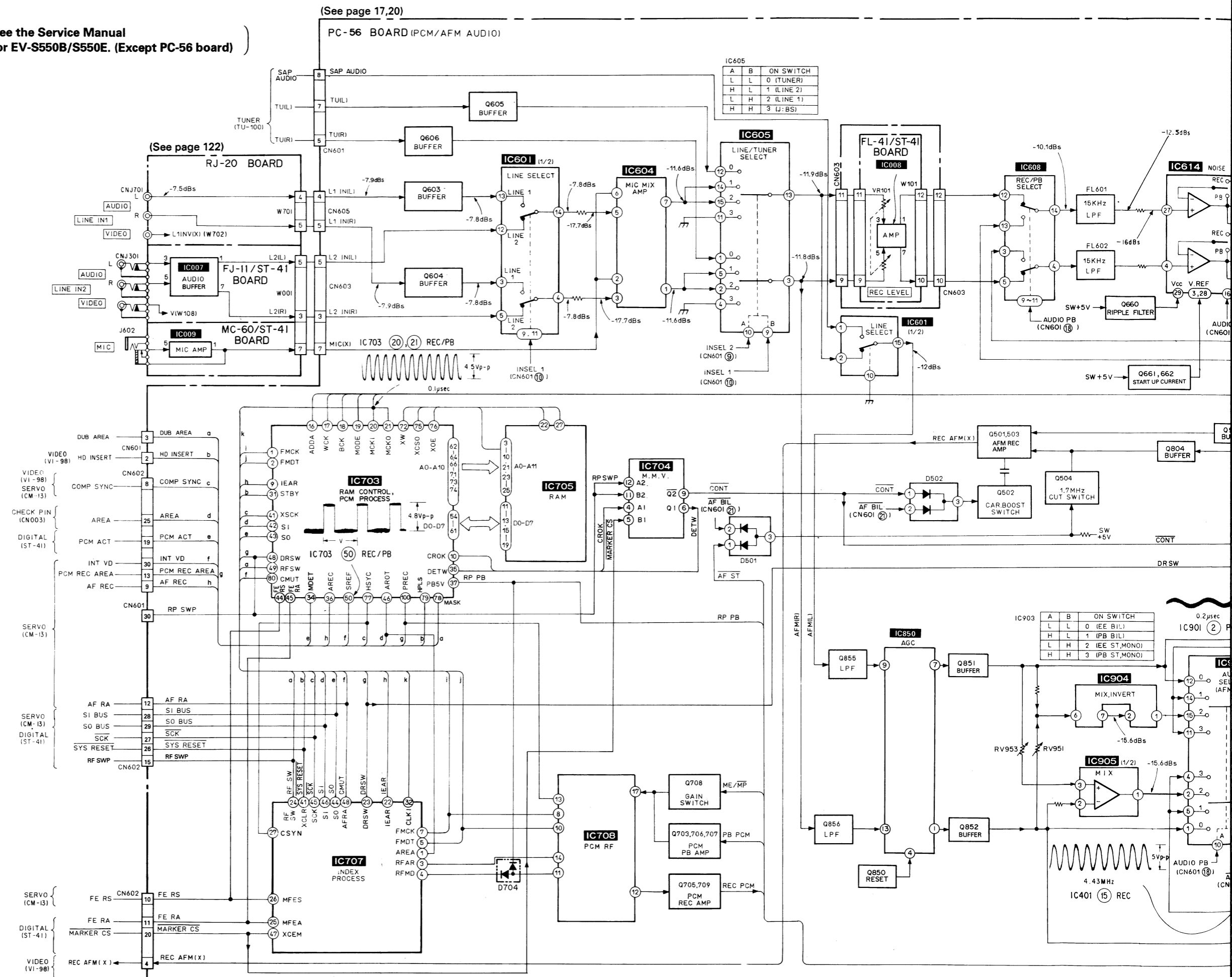
(Regarding reference pages in this diagram : See the Service Manual for EV-S550B/S550E. (Except PC-56 board))





1-2. AUDIO BLOCK DIAGRAM

**(Regarding reference pages in this diagram : See the Service Manual
for EV-S550B/S550E. (Except PC-56 board))**

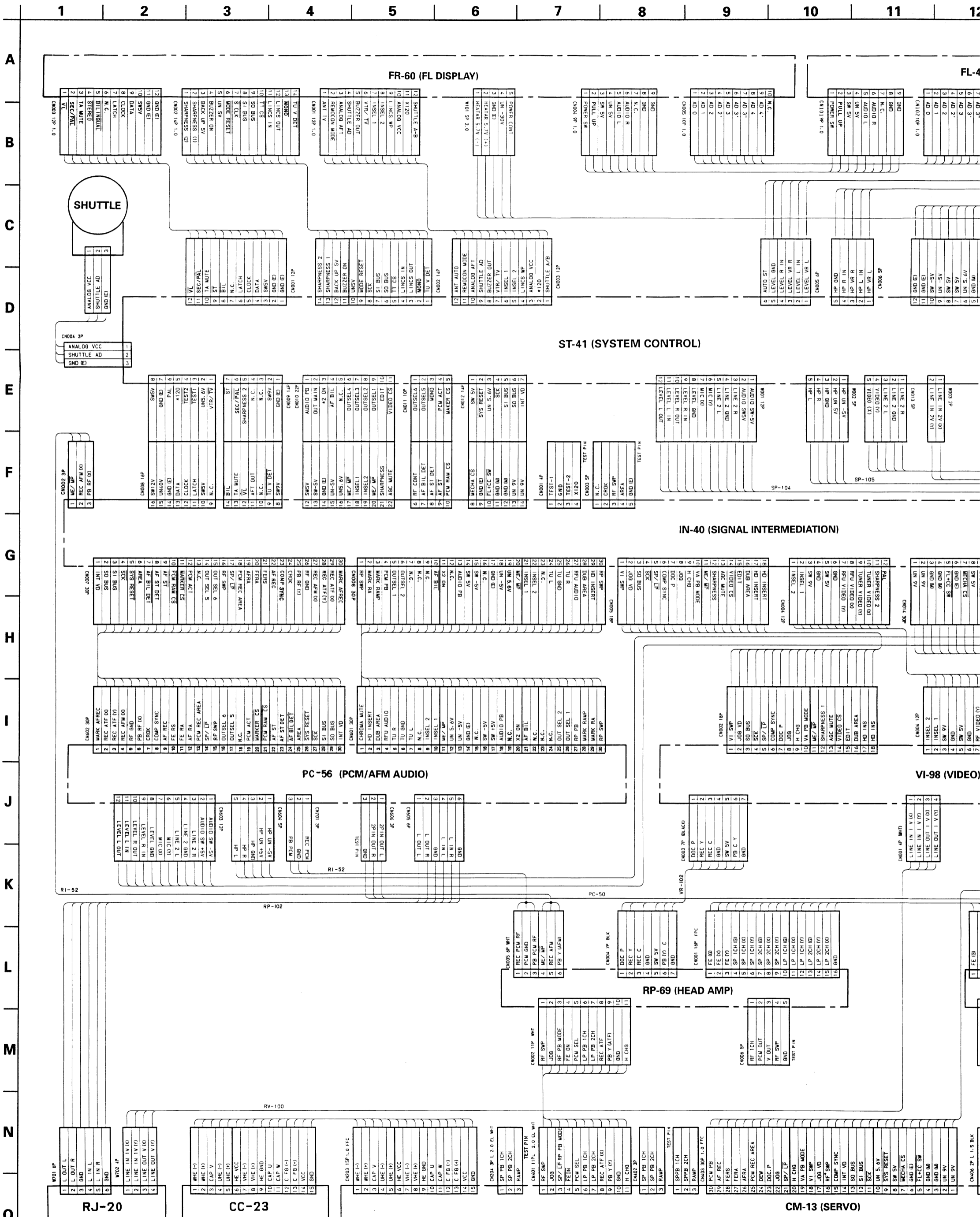


SECTION 2

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

2-1. FRAME SCHEMATIC DIAGRAM

For AEP/Australian model (EV-S550E)



2-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

PC-56 BOARD SCHEMATIC DIAGRAM

—Ref. No. PC-56 Board: 4000 series—

(Regarding reference pages in this diagram : See the Service Manual for EV-S550B/S550E. (Except

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- : indicated a lead wire mounted on the component side.
- : indicated a lead wire mounted on the conductor side.
- : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing. The inner two layers' patterns are not indicated.
- ▩ : Pattern of the rear side.*
- Circled numbers refer to waveforms.*
- (B) or (F), etc. of capacitors indicate the temperature characteristics.

Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Component side) parts face are indicated.

For schematic diagram:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊞ : nonflammable resistor.
- ⊞ : fusible resistor.
- : panel designation.
- △ : internal component.
- △ : adjustment for repair.*
- : B + Line.*
- : B - Line.*
- ⇒ : IN/OUT direction of (+, -) B LINE.*
- Circled numbers refer to waveforms.*
- Volts are DC between measurement points and ground unless otherwise noted.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*
- Circled numbers refer to waveforms.

* : indicated by the color red.

When indicating parts by reference number, please include the board name.

Note:

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

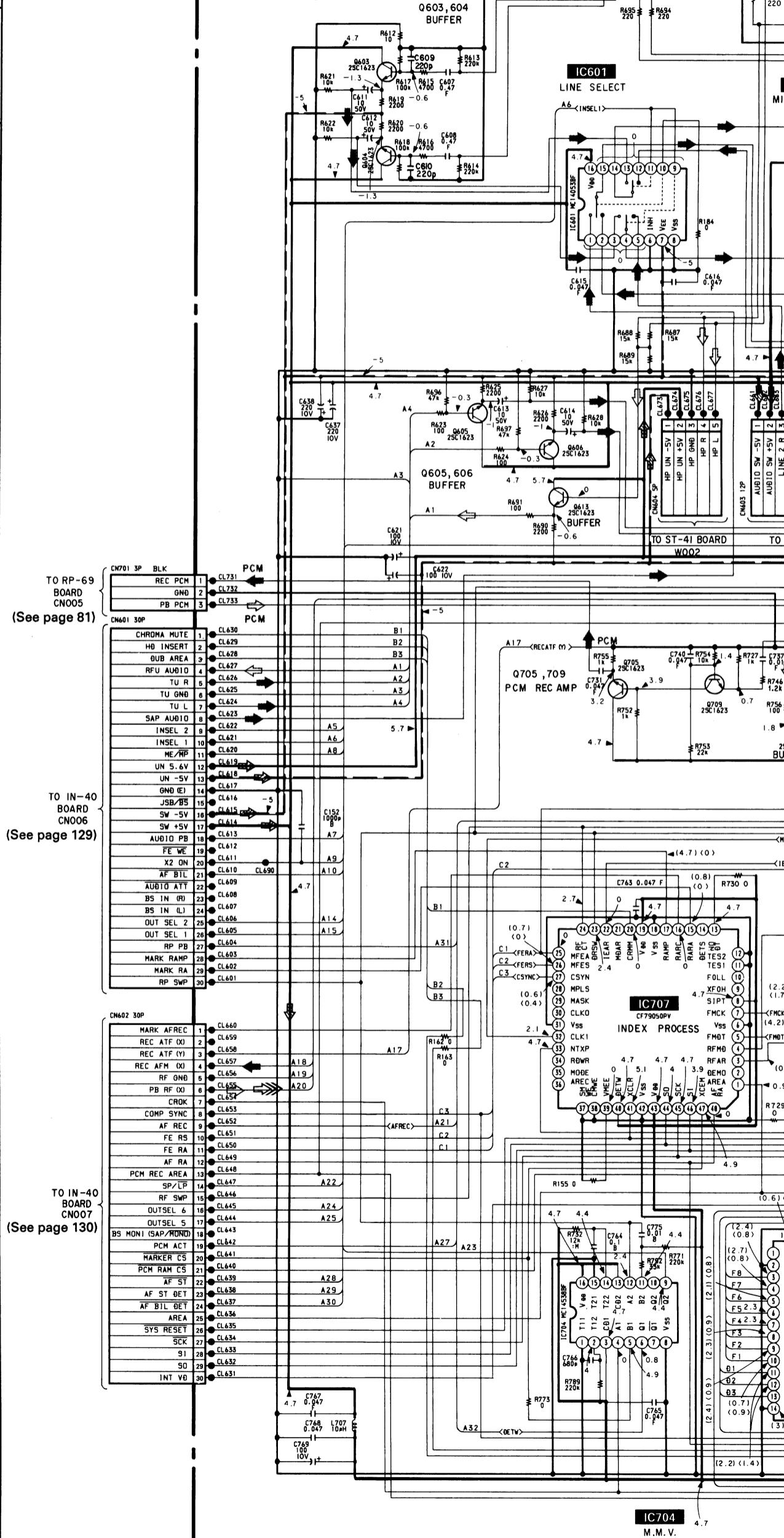
Note:

Les composants identifiés par une marque △ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

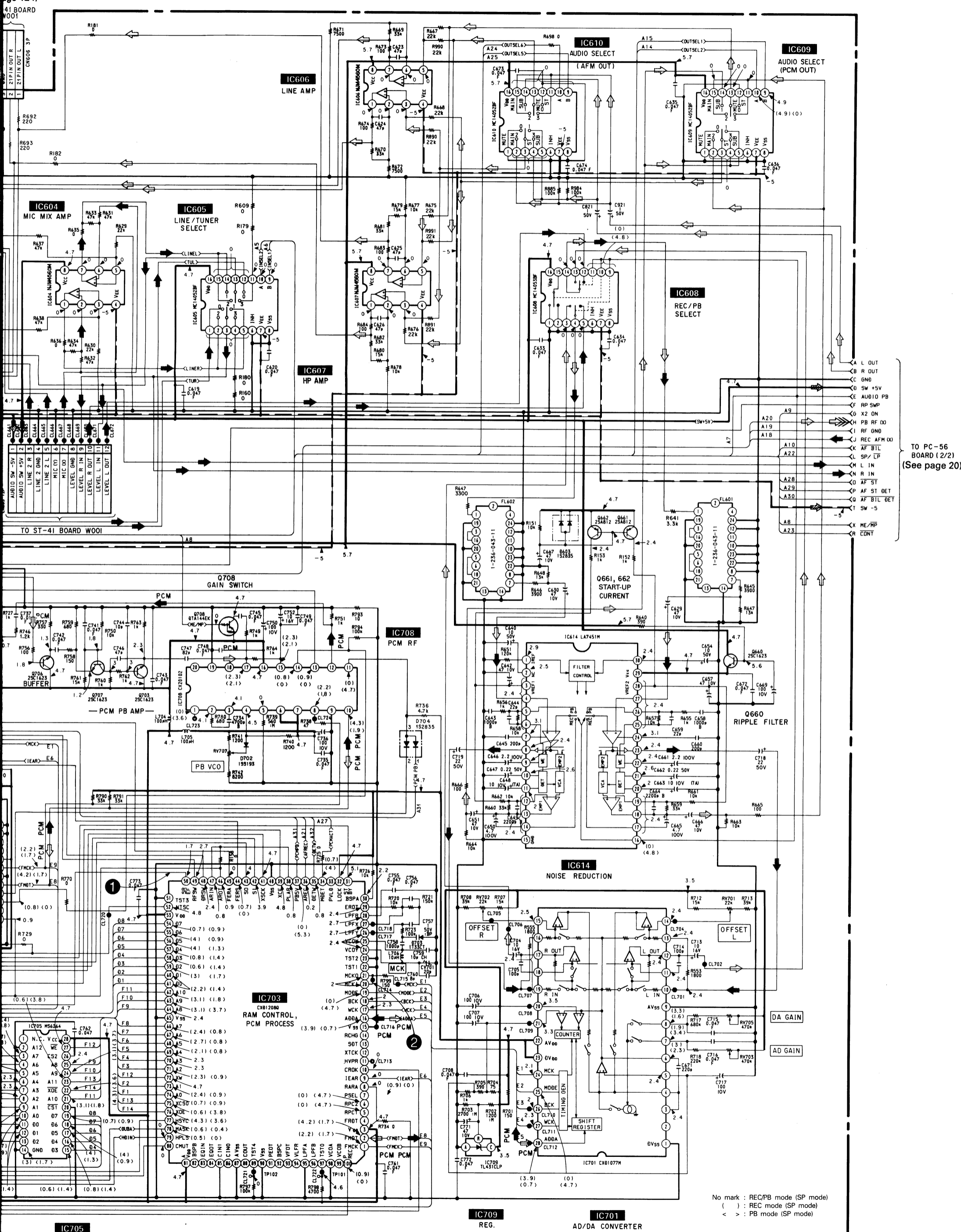
• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				→
PB			⇒⇒	⇒

PC-56 BOARD (1/2) (PCM/AFM AUDIO) (PCM/AFM BLOCK)



AUDIO AUDIO

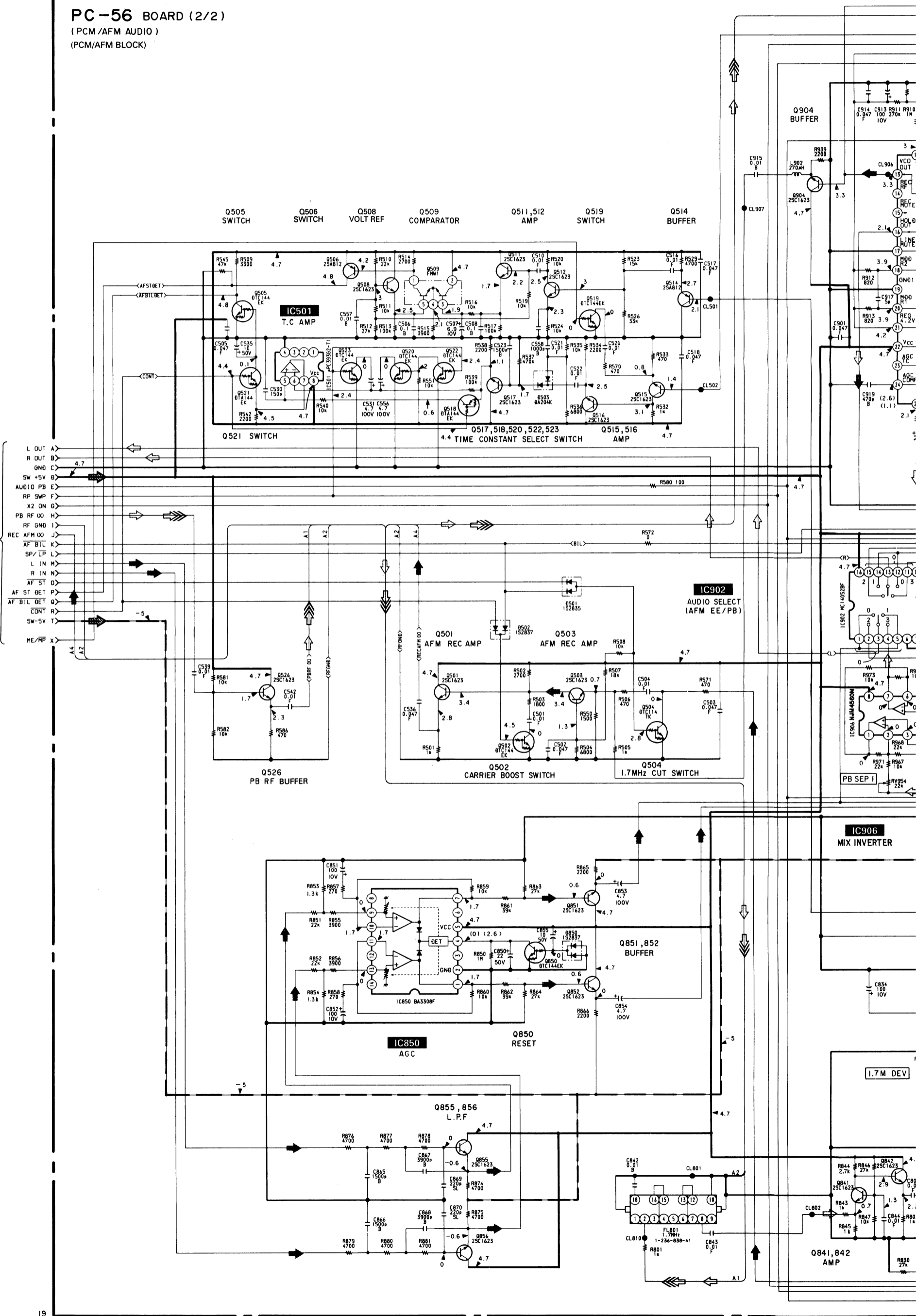


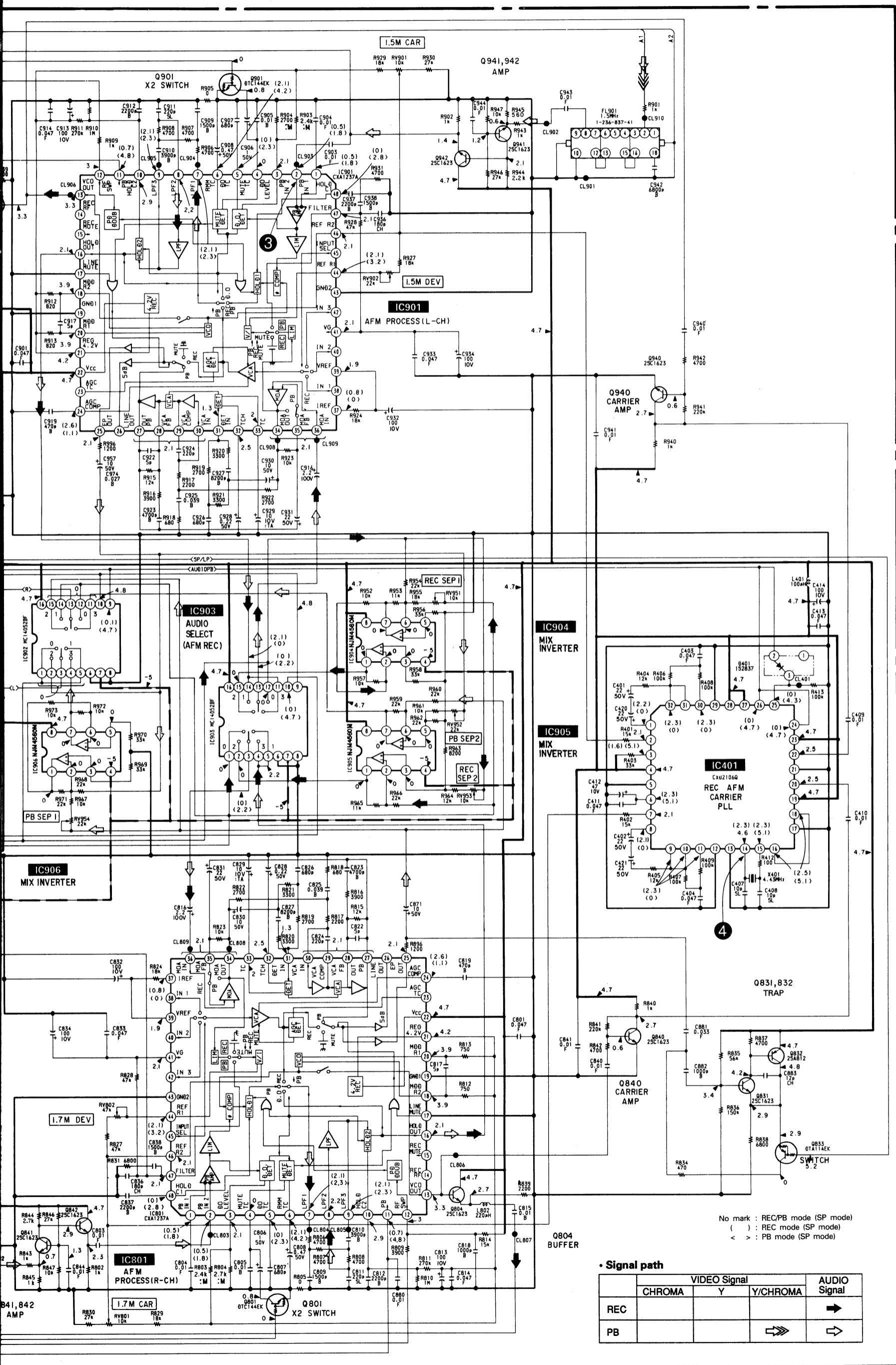
1 2 3 4 5 6 7 8 9 10 11

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

PC-56 BOARD (2/2)
(PCM/AFM AUDIO)
(PCM/AFM BLOCK)

TO PC-56
BOARD (1/2)
(See page 19)





PC-56 BOARD PRINTED WIRING BOARD
—Ref. No. PC-56 Board: 4000 series—

Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
(Conductor side)
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Component side)

< DIODE >				
D401	8-719-400-18	DIODE	MA152WK	
D501	8-719-104-34	DIODE	1S2836	
D502	8-719-400-18	DIODE	MA152WK	
D503	8-719-800-76	DIODE	1SS226	
D603	8-719-104-34	DIODE	1S2836	
D702	8-719-400-18	DIODE	MA152WK	
D703	8-713-300-88	DIODE	1T33C-01	
D704	8-719-104-34	DIODE	1S2836	
D850	8-719-400-18	DIODE	MA152WK	

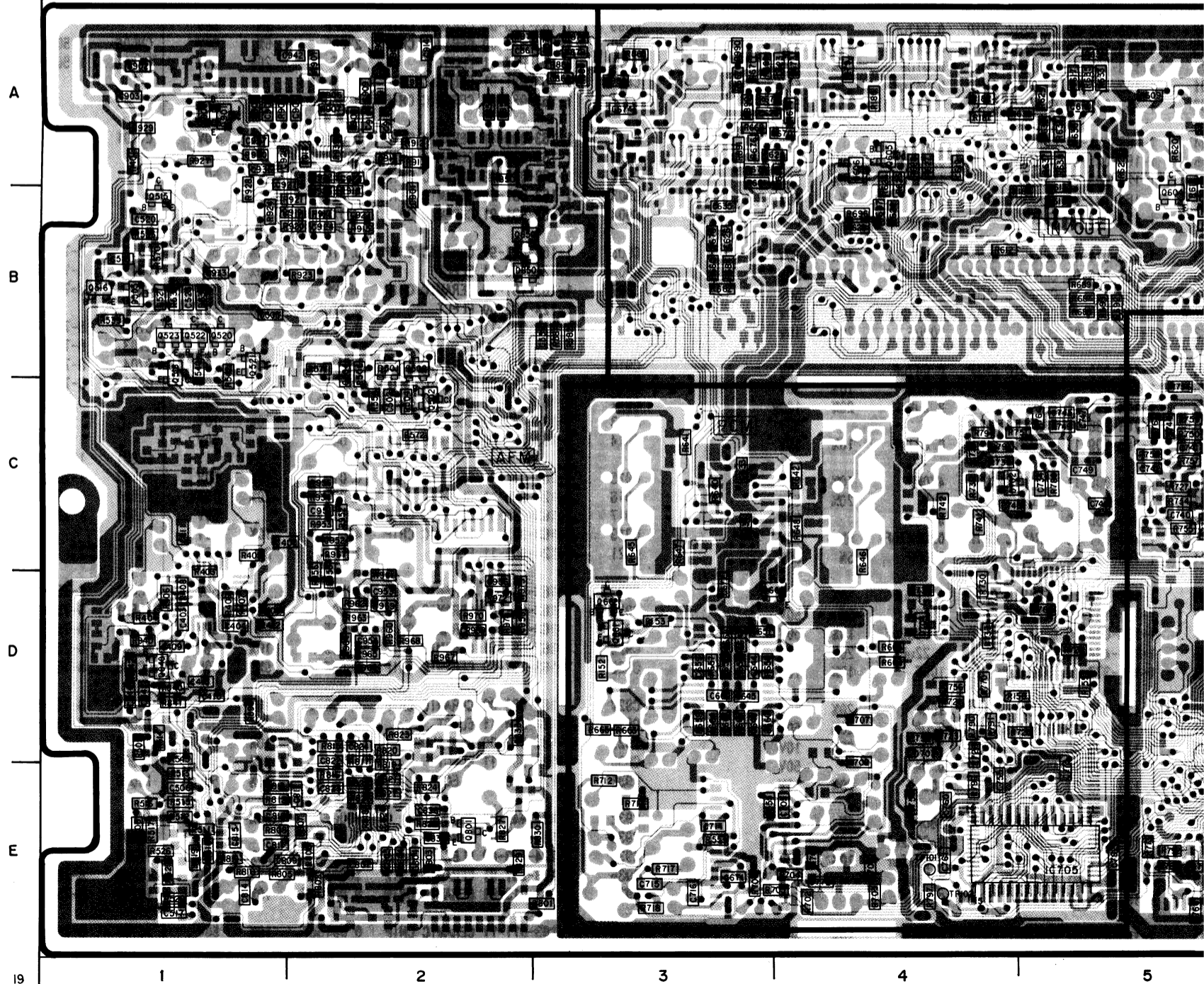
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IC401	8-752-334-42	IC	CXD2106Q	
IC501	8-759-100-93	IC	μPC393G2	
IC601	8-759-300-71	IC	HD14053BFP	
IC604	8-759-981-99	IC	RC4560M	
IC605	8-759-009-06	IC	MC14052BF	
IC606	8-759-981-99	IC	RC4560M	
IC607	8-759-981-99	IC	RC4560M	
IC608	8-759-300-71	IC	HD14053BFP	
IC609	8-759-009-06	IC	MC14052BF	
IC610	8-759-009-06	IC	MC14052BF	
IC614	8-759-822-92	IC	LA7451M	
IC701	8-752-322-57	IC	CXD1077M	
IC703	8-752-332-46	IC	CXD1208Q	
IC704	8-759-009-51	IC	MC14538BF	
IC705	8-759-507-53	IC	MS6264CLL-15FC	
IC707	8-759-502-14	IC	CF79050PV	
IC708	8-752-010-20	IC	CX20102	
IC709	8-759-908-15	IC	TL431CLP	

IC801	8-752-033-01	IC	CXA1237AR	
IC850	8-759-998-71	IC	BA3308F	
IC901	8-752-033-01	IC	CXA1237AR	
IC902	8-759-009-06	IC	MC14052BF	
IC903	8-759-009-06	IC	MC14052BF	
IC904	8-759-981-99	IC	RC4560M	
IC905	8-759-981-99	IC	RC4560M	
IC906	8-759-981-99	IC	RC4560M	

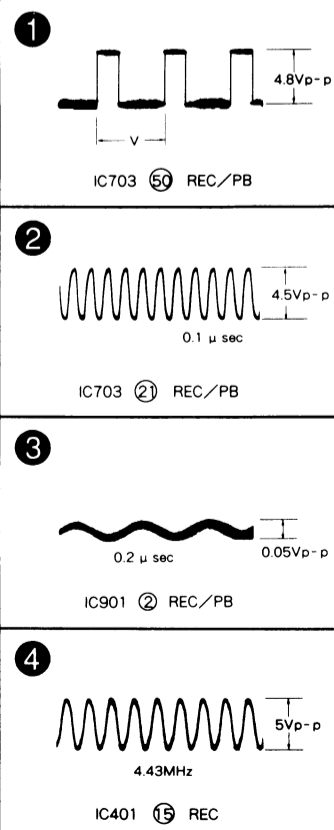
< TRANSISTOR >				
Q501	8-729-100-66	TRANSISTOR	2SC1623	
Q502	8-729-901-01	TRANSISTOR	DTC144EK	
Q503	8-729-100-66	TRANSISTOR	2SC1623	
Q504	8-729-902-99	TRANSISTOR	DTC114TK	
Q505	8-729-901-01	TRANSISTOR	DTC144EK	
Q506	8-729-216-22	TRANSISTOR	2SA1162	
Q508	8-729-100-66	TRANSISTOR	2SC1623	
Q509	8-729-903-10	TRANSISTOR	FMN1	
Q511	8-729-100-66	TRANSISTOR	2SC1623	
Q512	8-729-100-66	TRANSISTOR	2SC1623	
Q514	8-729-216-22	TRANSISTOR	2SA1162	
Q515	8-729-100-66	TRANSISTOR	2SC1623	
Q516	8-729-100-66	TRANSISTOR	2SC1623	
Q517	8-729-100-66	TRANSISTOR	2SC1623	
Q518	8-729-901-06	TRANSISTOR	DTA144EK	
Q519	8-729-901-01	TRANSISTOR	DTC144EK	
Q520	8-729-901-01	TRANSISTOR	DTC144EK	
Q521	8-729-901-06	TRANSISTOR	DTA144EK	
Q522	8-729-901-01	TRANSISTOR	DTC144EK	
Q523	8-729-901-01	TRANSISTOR	DTC144EK	

Q526	8-729-100-66	TRANSISTOR	2SC1623	
Q603	8-729-100-66	TRANSISTOR	2SC1623	
Q604	8-729-100-66	TRANSISTOR	2SC1623	
Q605	8-729-100-66	TRANSISTOR	2SC1623	
Q606	8-729-100-66	TRANSISTOR	2SC1623	
Q613	8-729-100-66	TRANSISTOR	2SC1623	
Q660	8-729-100-66	TRANSISTOR	2SC1623	
Q661	8-729-216-22	TRANSISTOR	2SA1162	
Q662	8-729-216-22	TRANSISTOR	2SA1162	
Q703	8-729-100-66	TRANSISTOR	2SC1623	
Q705	8-729-100-66	TRANSISTOR	2SC1623	
Q706	8-729-100-66	TRANSISTOR	2SC1623	
Q707	8-729-100-66	TRANSISTOR	2SC1623	
Q708	8-729-901-06	TRANSISTOR	DTA144EK	
Q709	8-729-100-66	TRANSISTOR	2SC1623	
Q801	8-729-901-01	TRANSISTOR	DTC144EK	
Q804	8-729-100-66	TRANSISTOR	2SC1623	
Q831	8-729-100-66	TRANSISTOR	2SC1623	
Q832	8-729-216-22	TRANSISTOR	2SA1162	
Q833	8-729-901-04	TRANSISTOR	DTA114EK	
Q840	8-729-100-66	TRANSISTOR	2SC1623	
Q841	8-729-100-66	TRANSISTOR	2SC1623	
Q842	8-729-100-66	TRANSISTOR	2SC1623	
Q850	8-729-901-01	TRANSISTOR	DTC144EK	
Q851	8-729-100-66	TRANSISTOR	2SC1623	
Q852	8-729-100-66	TRANSISTOR	2SC1623	
Q855	8-729-100-66	TRANSISTOR	2SC1623	
Q856	8-729-100-66	TRANSISTOR	2SC1623	
Q901	8-729-901-01	TRANSISTOR	DTC144EK	

PC-56 BOARD (CONDUCTOR SIDE)

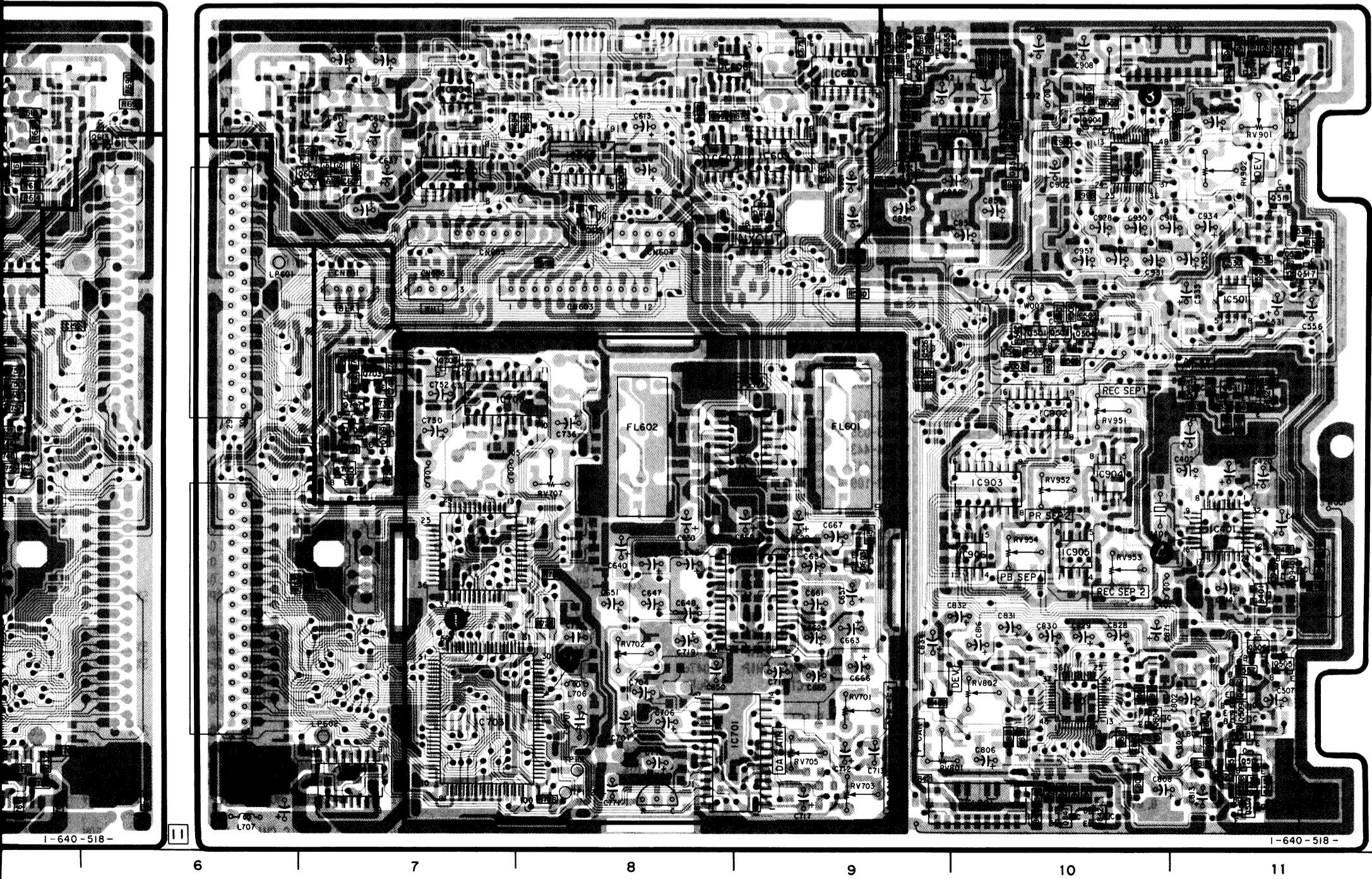


PC-56 BOARD



Q904	8-729-100-66	TRANSISTOR	2SC1623
Q940	8-729-100-66	TRANSISTOR	2SC1623
Q941	8-729-100-66	TRANSISTOR	2SC1623
Q942	8-729-100-66	TRANSISTOR	2SC1623

PC-56 BOARD (COMPONENT SIDE)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
IC801	8-752-033-01	IC CXA1237AR		Q709	8-729-100-66	TRANSISTOR 2SC1623	
IC850	8-759-998-71	IC BA3308F		Q801	8-729-901-01	TRANSISTOR DTC144EK	
IC901	8-752-033-01	IC CXA1237AR		Q804	8-729-100-66	TRANSISTOR 2SC1623	
IC902	8-759-009-06	IC MC14052BF		Q831	8-729-100-66	TRANSISTOR 2SC1623	
IC903	8-759-009-06	IC MC14052BF		Q832	8-729-216-22	TRANSISTOR 2SA1162	
IC904	8-759-981-99	IC RC4560M		Q833	8-729-901-04	TRANSISTOR DTA114EK	
IC905	8-759-981-99	IC RC4560M		Q840	8-729-100-66	TRANSISTOR 2SC1623	
IC906	8-759-981-99	IC RC4560M		Q841	8-729-100-66	TRANSISTOR 2SC1623	
< COIL >				Q842	8-729-100-66	TRANSISTOR 2SC1623	
L401	1-407-169-XX	INDUCTOR 100uH		Q850	8-729-901-01	TRANSISTOR DTC144EK	
L704	1-407-169-XX	INDUCTOR 100uH		Q851	8-729-100-66	TRANSISTOR 2SC1623	
L705	1-407-169-XX	INDUCTOR 100uH		Q852	8-729-100-66	TRANSISTOR 2SC1623	
L706	1-408-970-21	INDUCTOR 10uH		Q855	8-729-100-66	TRANSISTOR 2SC1623	
L707	1-408-970-21	INDUCTOR 10uH		Q856	8-729-100-66	TRANSISTOR 2SC1623	
L802	1-408-948-00	INDUCTOR 220uH		Q901	8-729-901-01	TRANSISTOR DTC144EK	
L902	1-408-986-21	INDUCTOR 270uH		Q904	8-729-100-66	TRANSISTOR 2SC1623	
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Q501	8-729-100-66	TRANSISTOR 2SC1623		Q941	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-901-01	TRANSISTOR DTC144EK		Q942	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-100-66	TRANSISTOR 2SC1623		< RESISTOR >			
Q504	8-729-902-99	TRANSISTOR DTC114TK		R151	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q505	8-729-901-01	TRANSISTOR DTC144EK		R152	1-216-049-00	METAL CHIP 1K 5% 1/10W	
Q506	8-729-216-22	TRANSISTOR 2SA1162		R153	1-216-049-00	METAL CHIP 1K 5% 1/10W	
Q508	8-729-100-66	TRANSISTOR 2SC1623		R155	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q509	8-729-903-10	TRANSISTOR FMW1		R158	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q511	8-729-100-66	TRANSISTOR 2SC1623		R162	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q512	8-729-100-66	TRANSISTOR 2SC1623		R163	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q514	8-729-216-22	TRANSISTOR 2SA1162		R179	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q515	8-729-100-66	TRANSISTOR 2SC1623		R180	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q516	8-729-100-66	TRANSISTOR 2SC1623		R181	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q517	8-729-100-66	TRANSISTOR 2SC1623		R182	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q518	8-729-901-06	TRANSISTOR DTA144EK		R184	1-216-295-00	METAL CHIP 0 5% 1/10W	
Q519	8-729-901-01	TRANSISTOR DTC144EK		R401	1-216-077-00	METAL CHIP 15K 5% 1/10W	
Q520	8-729-901-01	TRANSISTOR DTC144EK		R402	1-216-077-00	METAL CHIP 15K 5% 1/10W	
Q521	8-729-901-06	TRANSISTOR DTA144EK		R403	1-216-085-00	METAL CHIP 33K 5% 1/10W	
Q522	8-729-901-01	TRANSISTOR DTC144EK		R404	1-216-075-00	METAL CHIP 12K 5% 1/10W	
Q523	8-729-901-01	TRANSISTOR DTC144EK		R405	1-216-075-00	METAL CHIP 12K 5% 1/10W	
Q526	8-729-100-66	TRANSISTOR 2SC1623		R406	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q603	8-729-100-66	TRANSISTOR 2SC1623		R407	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q604	8-729-100-66	TRANSISTOR 2SC1623		R408	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q605	8-729-100-66	TRANSISTOR 2SC1623		R409	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q606	8-729-100-66	TRANSISTOR 2SC1623		R412	1-216-025-00	METAL CHIP 100 5% 1/10W	
Q613	8-729-100-66	TRANSISTOR 2SC1623		R413	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q660	8-729-100-66	TRANSISTOR 2SC1623		R501	1-216-049-00	METAL CHIP 1K 5% 1/10W	
Q661	8-729-216-22	TRANSISTOR 2SA1162		R502	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
Q662	8-729-216-22	TRANSISTOR 2SA1162		R503	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
Q703	8-729-100-66	TRANSISTOR 2SC1623		R504	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
Q705	8-729-100-66	TRANSISTOR 2SC1623		R505	1-216-049-00	METAL CHIP 1K 5% 1/10W	
Q706	8-729-100-66	TRANSISTOR 2SC1623		R506	1-216-041-00	METAL CHIP 470 5% 1/10W	
Q707	8-729-100-66	TRANSISTOR 2SC1623		R507	1-216-079-00	METAL CHIP 18K 5% 1/10W	
Q708	8-729-901-06	TRANSISTOR DTA144EK		R508	1-216-073-00	METAL CHIP 10K 5% 1/10W	
				R509	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	

When indicating parts by reference number, please include the board name.

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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R510	1-216-081-00	METAL CHIP	22K 5% 1/10W	R627	1-216-073-00	METAL CHIP	10K 5% 1/10W
R511	1-216-073-00	METAL CHIP	10K 5% 1/10W	R628	1-216-073-00	METAL CHIP	10K 5% 1/10W
R512	1-216-083-00	METAL CHIP	27K 5% 1/10W	R629	1-216-081-00	METAL CHIP	22K 5% 1/10W
R513	1-216-097-00	METAL CHIP	100K 5% 1/10W	R630	1-216-081-00	METAL CHIP	22K 5% 1/10W
R514	1-216-059-00	METAL CHIP	2.7K 5% 1/10W	R631	1-216-089-00	METAL CHIP	47K 5% 1/10W
R515	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	R632	1-216-089-00	METAL CHIP	47K 5% 1/10W
R516	1-216-073-00	METAL CHIP	10K 5% 1/10W	R633	1-216-089-00	METAL CHIP	47K 5% 1/10W
R517	1-216-097-00	METAL CHIP	100K 5% 1/10W	R634	1-216-089-00	METAL CHIP	47K 5% 1/10W
R519	1-216-065-00	METAL CHIP	10K 5% 1/10W	R635	1-216-295-00	METAL CHIP	0 5% 1/10W
R520	1-216-073-00	METAL CHIP	10K 5% 1/10W	R636	1-216-295-00	METAL CHIP	0 5% 1/10W
R523	1-216-077-00	METAL CHIP	15K 5% 1/10W	R637	1-216-089-00	METAL CHIP	47K 5% 1/10W
R524	1-216-073-00	METAL CHIP	10K 5% 1/10W	R638	1-216-089-00	METAL CHIP	47K 5% 1/10W
R526	1-216-085-00	METAL CHIP	33K 5% 1/10W	R640	1-216-039-00	METAL CHIP	390 5% 1/10W
R529	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R641	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R532	1-216-049-00	METAL CHIP	1K 5% 1/10W	R642	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R533	1-216-041-00	METAL CHIP	470 5% 1/10W	R645	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R534	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R646	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R535	1-216-073-00	METAL CHIP	10K 5% 1/10W	R647	1-216-076-00	METAL GLAZE	13K 5% 1/10W
R536	1-216-069-00	METAL CHIP	6.8K 5% 1/10W	R648	1-216-076-00	METAL GLAZE	13K 5% 1/10W
R537	1-216-113-00	METAL CHIP	470K 5% 1/10W	R651	1-216-099-00	METAL CHIP	120K 5% 1/10W
R538	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R655	1-216-049-00	METAL CHIP	1K 5% 1/10W
R539	1-216-097-00	METAL CHIP	100K 5% 1/10W	R656	1-216-049-00	METAL CHIP	1K 5% 1/10W
R540	1-216-073-00	METAL CHIP	10K 5% 1/10W	R657	1-216-073-00	METAL CHIP	10K 5% 1/10W
R542	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R658	1-216-073-00	METAL CHIP	10K 5% 1/10W
R545	1-216-089-00	METAL CHIP	47K 5% 1/10W	R659	1-216-085-00	METAL CHIP	33K 5% 1/10W
R550	1-216-053-00	METAL CHIP	1.5K 5% 1/10W	R660	1-216-085-00	METAL CHIP	33K 5% 1/10W
R551	1-216-073-00	METAL CHIP	10K 5% 1/10W	R661	1-216-073-00	METAL CHIP	10K 5% 1/10W
R553	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	R662	1-216-073-00	METAL CHIP	10K 5% 1/10W
R555	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	R663	1-216-073-00	METAL CHIP	10K 5% 1/10W
R570	1-216-041-00	METAL CHIP	470 5% 1/10W	R664	1-216-073-00	METAL CHIP	10K 5% 1/10W
R571	1-216-041-00	METAL CHIP	470 5% 1/10W	R665	1-216-025-00	METAL CHIP	100 5% 1/10W
R572	1-216-295-00	METAL CHIP	0 5% 1/10W	R666	1-216-025-00	METAL CHIP	100 5% 1/10W
R580	1-216-025-00	METAL CHIP	100 5% 1/10W	R667	1-216-081-00	METAL CHIP	22K 5% 1/10W
R581	1-216-073-00	METAL CHIP	10K 5% 1/10W	R668	1-216-081-00	METAL CHIP	22K 5% 1/10W
R582	1-216-073-00	METAL CHIP	10K 5% 1/10W	R669	1-216-085-00	METAL CHIP	33K 5% 1/10W
R586	1-216-041-00	METAL CHIP	470 5% 1/10W	R670	1-216-085-00	METAL CHIP	33K 5% 1/10W
R609	1-216-295-00	METAL CHIP	0 5% 1/10W	R671	1-216-070-00	METAL CHIP	7.5K 5% 1/10W
R610	1-216-295-00	METAL CHIP	0 5% 1/10W	R672	1-216-070-00	METAL CHIP	7.5K 5% 1/10W
R612	1-216-001-00	METAL CHIP	10 5% 1/10W	R673	1-216-025-00	METAL CHIP	100 5% 1/10W
R613	1-216-105-00	METAL CHIP	220K 5% 1/10W	R674	1-216-025-00	METAL CHIP	100 5% 1/10W
R614	1-216-105-00	METAL CHIP	220K 5% 1/10W	R675	1-216-081-00	METAL CHIP	22K 5% 1/10W
R615	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R676	1-216-081-00	METAL CHIP	22K 5% 1/10W
R616	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R677	1-216-073-00	METAL CHIP	10K 5% 1/10W
R617	1-216-097-00	METAL CHIP	100K 5% 1/10W	R678	1-216-073-00	METAL CHIP	10K 5% 1/10W
R618	1-216-097-00	METAL CHIP	100K 5% 1/10W	R679	1-216-077-00	METAL CHIP	15K 5% 1/10W
R619	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R680	1-216-077-00	METAL CHIP	15K 5% 1/10W
R620	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R681	1-216-085-00	METAL CHIP	33K 5% 1/10W
R621	1-216-073-00	METAL CHIP	10K 5% 1/10W	R682	1-216-085-00	METAL CHIP	33K 5% 1/10W
R622	1-216-073-00	METAL CHIP	10K 5% 1/10W	R683	1-216-025-00	METAL CHIP	100 5% 1/10W
R623	1-216-025-00	METAL CHIP	100 5% 1/10W	R684	1-216-025-00	METAL CHIP	100 5% 1/10W
R624	1-216-025-00	METAL CHIP	100 5% 1/10W	R687	1-216-077-00	METAL CHIP	15K 5% 1/10W
R625	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R688	1-216-077-00	METAL CHIP	15K 5% 1/10W
R626	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R689	1-216-077-00	METAL CHIP	15K 5% 1/10W

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R690	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W	R764	1-216-049-00	METAL CHIP	1K 5% 1/10W
R691	1-216-025-00	METAL CHIP	100 5% 1/10W	R770	1-216-295-00	METAL CHIP	0 5% 1/10W
R692	1-216-033-00	METAL CHIP	220 5% 1/10W	R771	1-216-105-00	METAL CHIP	220K 5% 1/10W
R693	1-216-033-00	METAL CHIP	220 5% 1/10W	R773	1-216-295-00	METAL CHIP	0 5% 1/10W
R694	1-216-033-00	METAL CHIP	220 5% 1/10W	R780	1-216-045-00	METAL CHIP	680 5% 1/10W
R695	1-216-033-00	METAL CHIP	220 5% 1/10W	R789	1-216-105-00	METAL CHIP	220K 5% 1/10W
R696	1-216-089-00	METAL CHIP	47K 5% 1/10W	R790	1-216-085-00	METAL CHIP	33K 5% 1/10W
R697	1-216-089-00	METAL CHIP	47K 5% 1/10W	R791	1-216-085-00	METAL CHIP	33K 5% 1/10W
R698	1-216-295-00	METAL CHIP	0 5% 1/10W	R792	1-216-085-00	METAL CHIP	33K 5% 1/10W
R701	1-216-029-00	METAL CHIP	150 5% 1/10W	R793	1-216-001-00	METAL CHIP	10 5% 1/10W
R702	1-216-653-11	METAL CHIP	1. 2K 0. 5% 1/10W	R794	1-216-097-00	METAL CHIP	100K 5% 1/10W
R703	1-216-661-11	METAL CHIP	2. 7K 0. 5% 1/10W	R797	1-216-097-00	METAL CHIP	100K 5% 1/10W
R704	1-216-022-00	METAL CHIP	75 5% 1/10W	R798	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R705	1-216-039-00	METAL CHIP	390 5% 1/10W	R799	1-216-029-00	METAL CHIP	150 5% 1/10W
R706	1-216-049-00	METAL CHIP	1K 5% 1/10W	R801	1-216-049-00	METAL CHIP	1K 5% 1/10W
R707	1-216-077-00	METAL CHIP	15K 5% 1/10W	R802	1-216-049-00	METAL CHIP	1K 5% 1/10W
R708	1-216-748-11	METAL CHIP	39K 1% 1/10W	R803	1-216-660-11	METAL CHIP	2. 4K 0. 5% 1/10W
R712	1-216-077-00	METAL CHIP	15K 5% 1/10W	R804	1-216-661-11	METAL CHIP	2. 7K 0. 5% 1/10W
R713	1-216-748-11	METAL CHIP	39K 1% 1/10W	R805	1-216-295-00	METAL CHIP	0 5% 1/10W
R717	1-216-117-00	METAL CHIP	680K 5% 1/10W	R806	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R718	1-216-105-00	METAL CHIP	220K 5% 1/10W	R807	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R720	1-216-073-00	METAL CHIP	10K 5% 1/10W	R808	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R721	1-216-101-00	METAL CHIP	150K 5% 1/10W	R809	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R723	1-216-097-00	METAL CHIP	100K 5% 1/10W	R810	1-216-121-00	METAL CHIP	1M 5% 1/10W
R725	1-216-295-00	METAL CHIP	0 5% 1/10W	R811	1-216-107-00	METAL CHIP	270K 5% 1/10W
R726	1-216-073-00	METAL CHIP	10K 5% 1/10W	R812	1-216-046-00	METAL CHIP	750 5% 1/10W
R727	1-216-049-00	METAL CHIP	1K 5% 1/10W	R813	1-216-046-00	METAL CHIP	750 5% 1/10W
R729	1-216-295-00	METAL CHIP	0 5% 1/10W	R814	1-216-077-00	METAL CHIP	15K 5% 1/10W
R730	1-216-295-00	METAL CHIP	0 5% 1/10W	R815	1-216-075-00	METAL CHIP	12K 5% 1/10W
R732	1-216-677-11	METAL CHIP	12K 0. 5% 1/10W	R816	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R734	1-216-295-00	METAL CHIP	0 5% 1/10W	R817	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R736	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W	R818	1-216-045-00	METAL CHIP	680 5% 1/10W
R738	1-216-017-00	METAL CHIP	47 5% 1/10W	R819	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R739	1-216-645-11	METAL CHIP	560 0. 5% 1/10W	R820	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R740	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W	R821	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R741	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W	R822	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R742	1-216-071-00	METAL CHIP	8. 2K 5% 1/10W	R823	1-216-073-00	METAL CHIP	10K 5% 1/10W
R746	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W	R824	1-216-079-00	METAL CHIP	18K 5% 1/10W
R749	1-216-049-00	METAL CHIP	1K 5% 1/10W	R827	1-216-089-00	METAL CHIP	47K 5% 1/10W
R750	1-216-073-00	METAL CHIP	10K 5% 1/10W	R828	1-216-089-00	METAL CHIP	47K 5% 1/10W
R751	1-216-049-00	METAL CHIP	1K 5% 1/10W	R829	1-216-079-00	METAL CHIP	18K 5% 1/10W
R752	1-216-049-00	METAL CHIP	1K 5% 1/10W	R830	1-216-083-00	METAL CHIP	27K 5% 1/10W
R753	1-216-081-00	METAL CHIP	22K 5% 1/10W	R831	1-216-069-00	METAL CHIP	6. 8K 5% 1/10W
R754	1-216-073-00	METAL CHIP	10K 5% 1/10W	R834	1-216-041-00	METAL CHIP	470 5% 1/10W
R755	1-216-049-00	METAL CHIP	1K 5% 1/10W	R835	1-216-091-00	METAL CHIP	56K 5% 1/10W
R756	1-216-025-00	METAL CHIP	100 5% 1/10W	R836	1-216-101-00	METAL CHIP	150K 5% 1/10W
R757	1-216-037-00	METAL CHIP	330 5% 1/10W	R837	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R758	1-216-029-00	METAL CHIP	150 5% 1/10W	R838	1-216-069-00	METAL CHIP	6. 8K 5% 1/10W
R759	1-216-045-00	METAL CHIP	680 5% 1/10W	R839	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R760	1-216-049-00	METAL CHIP	1K 5% 1/10W	R840	1-216-049-00	METAL CHIP	1K 5% 1/10W
R761	1-216-077-00	METAL CHIP	15K 5% 1/10W	R841	1-216-105-00	METAL CHIP	220K 5% 1/10W
R762	1-216-049-00	METAL CHIP	1K 5% 1/10W	R842	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R763	1-216-049-00	METAL CHIP	1K 5% 1/10W	R843	1-216-049-00	METAL CHIP	1K 5% 1/10W

When indicating parts by reference number, please include the board name.

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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R844	1-216-059-00	METAL CHIP	2.7K 5% 1/10W	R922	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R845	1-216-049-00	METAL CHIP	1K 5% 1/10W	R923	1-216-073-00	METAL CHIP	10K 5% 1/10W
R846	1-216-083-00	METAL CHIP	27K 5% 1/10W	R924	1-216-079-00	METAL CHIP	18K 5% 1/10W
R847	1-216-073-00	METAL CHIP	10K 5% 1/10W	R927	1-216-079-00	METAL CHIP	18K 5% 1/10W
R850	1-216-121-00	METAL CHIP	1M 5% 1/10W	R928	1-216-089-00	METAL CHIP	47K 5% 1/10W
R851	1-216-081-00	METAL CHIP	22K 5% 1/10W	R929	1-216-079-00	METAL CHIP	18K 5% 1/10W
R852	1-216-081-00	METAL CHIP	22K 5% 1/10W	R930	1-216-083-00	METAL CHIP	27K 5% 1/10W
R853	1-216-052-00	METAL CHIP	1.3K 5% 1/10W	R931	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R854	1-216-052-00	METAL CHIP	1.3K 5% 1/10W	R939	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R855	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	R940	1-216-049-00	METAL CHIP	1K 5% 1/10W
R856	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	R941	1-216-105-00	METAL CHIP	220K 5% 1/10W
R857	1-216-035-00	METAL CHIP	270 5% 1/10W	R942	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R858	1-216-035-00	METAL CHIP	270 5% 1/10W	R943	1-216-049-00	METAL CHIP	1K 5% 1/10W
R859	1-216-073-00	METAL CHIP	10K 5% 1/10W	R944	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R860	1-216-073-00	METAL CHIP	10K 5% 1/10W	R945	1-216-043-00	METAL CHIP	560 5% 1/10W
R861	1-216-748-11	METAL CHIP	39K 1% 1/10W	R946	1-216-083-00	METAL CHIP	27K 5% 1/10W
R862	1-216-748-11	METAL CHIP	39K 1% 1/10W	R947	1-216-073-00	METAL CHIP	10K 5% 1/10W
R863	1-216-083-00	METAL CHIP	27K 5% 1/10W	R952	1-216-073-00	METAL CHIP	10K 5% 1/10W
R864	1-216-083-00	METAL CHIP	27K 5% 1/10W	R953	1-216-074-00	METAL GLAZE	11K 5% 1/10W
R865	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R954	1-216-081-00	METAL CHIP	22K 5% 1/10W
R866	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R955	1-216-079-00	METAL CHIP	18K 5% 1/10W
R874	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R956	1-216-085-00	METAL CHIP	33K 5% 1/10W
R875	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R957	1-216-073-00	METAL CHIP	10K 5% 1/10W
R876	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R958	1-216-085-00	METAL CHIP	33K 5% 1/10W
R877	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R959	1-216-081-00	METAL CHIP	22K 5% 1/10W
R878	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R960	1-216-081-00	METAL CHIP	22K 5% 1/10W
R879	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R961	1-216-073-00	METAL CHIP	10K 5% 1/10W
R880	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R962	1-216-081-00	METAL CHIP	22K 5% 1/10W
R881	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R963	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R885	1-216-097-00	METAL CHIP	100K 5% 1/10W	R964	1-216-075-00	METAL CHIP	12K 5% 1/10W
R890	1-216-081-00	METAL CHIP	22K 5% 1/10W	R965	1-216-074-00	METAL GLAZE	11K 5% 1/10W
R891	1-216-081-00	METAL CHIP	22K 5% 1/10W	R966	1-216-081-00	METAL CHIP	22K 5% 1/10W
R896	1-216-051-00	METAL CHIP	1.2K 5% 1/10W	R967	1-216-073-00	METAL CHIP	10K 5% 1/10W
R901	1-216-049-00	METAL CHIP	1K 5% 1/10W	R968	1-216-081-00	METAL CHIP	22K 5% 1/10W
R902	1-216-049-00	METAL CHIP	1K 5% 1/10W	R969	1-216-085-00	METAL CHIP	33K 5% 1/10W
R903	1-216-660-11	METAL CHIP	2.4K 0.5% 1/10W	R970	1-216-085-00	METAL CHIP	33K 5% 1/10W
R904	1-216-661-11	METAL CHIP	2.7K 0.5% 1/10W	R971	1-216-081-00	METAL CHIP	22K 5% 1/10W
R905	1-216-295-00	METAL CHIP	0 5% 1/10W	R972	1-216-073-00	METAL CHIP	10K 5% 1/10W
R906	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R973	1-216-073-00	METAL CHIP	10K 5% 1/10W
R907	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R984	1-216-097-00	METAL CHIP	100K 5% 1/10W
R908	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R990	1-216-081-00	METAL CHIP	22K 5% 1/10W
R909	1-216-049-00	METAL CHIP	1K 5% 1/10W	R991	1-216-081-00	METAL CHIP	22K 5% 1/10W
R910	1-216-121-00	METAL CHIP	1M 5% 1/10W	R996	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R911	1-216-107-00	METAL CHIP	270K 5% 1/10W	(VARIABLE RESISTOR)			
R912	1-216-047-00	METAL CHIP	820 5% 1/10W	RV701	1-228-995-00	RES, ADJ, METAL22K	
R913	1-216-047-00	METAL CHIP	820 5% 1/10W	RV702	1-228-995-00	RES, ADJ, METAL22K	
R915	1-216-075-00	METAL CHIP	12K 5% 1/10W	RV703	1-228-999-00	RES, ADJ, METAL470K	
R916	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	RV705	1-228-999-00	RES, ADJ, METAL470K	
R917	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	RV707	1-228-991-00	RES, ADJ, METAL2.2K	
R918	1-216-045-00	METAL CHIP	680 5% 1/10W	RV801	1-228-994-00	RES, ADJ, METAL10K	
R919	1-216-059-00	METAL CHIP	2.7K 5% 1/10W	RV802	1-228-996-00	RES, ADJ, METAL47K	
R920	1-216-061-00	METAL CHIP	3.3K 5% 1/10W	RV901	1-228-994-00	RES, ADJ, METAL10K	
R921	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remarks
RV902	1-228-995-00	RES, ADJ, METAL22K	
RV951	1-228-994-00	RES, ADJ, METAL10K	
RV952	1-228-995-00	RES, ADJ, METAL22K	
RV953	1-228-994-00	RES, ADJ, METAL10K	
RV954	1-228-995-00	RES, ADJ, METAL22K	

< CRYSTAL >

X401	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)	
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When indicating parts by reference number, please include the board name.

